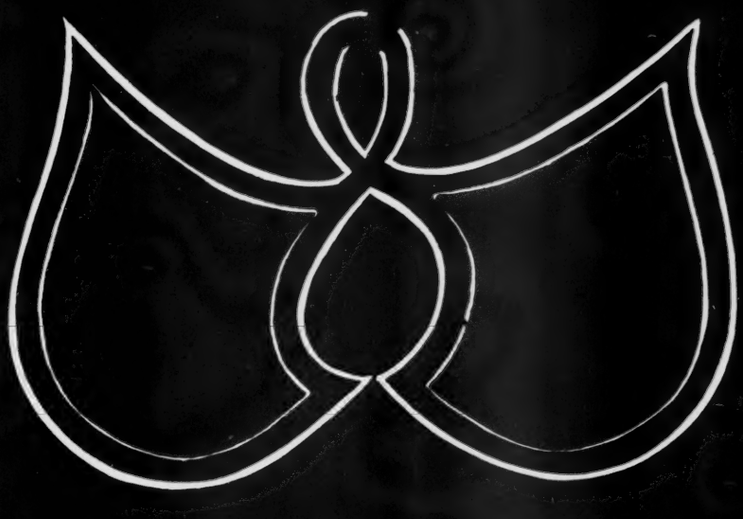


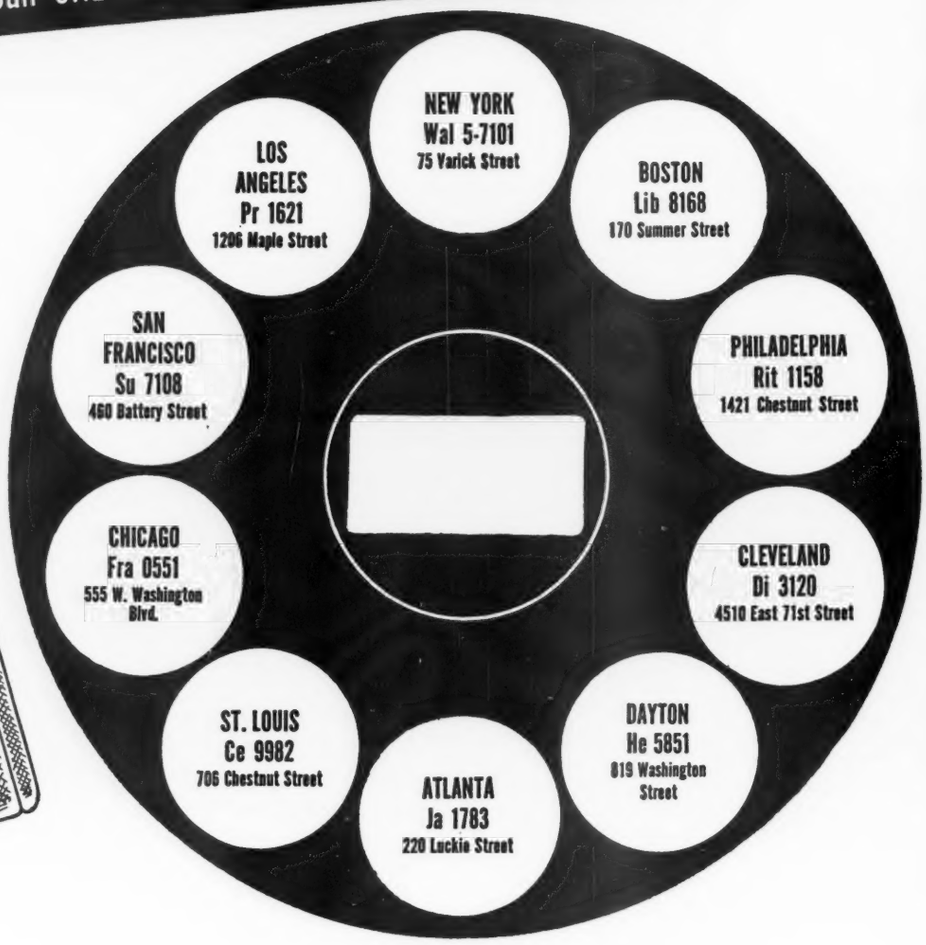
CRAFTSMEN'S PLANT ENGINEERING ISSUE

August 1945

PRINTING EQUIPMENT *Engineer*

NUMBER PLEASE?

Call ONE NUMBER for either Harris or Seybold



Throughout the country, Seybold cutters, trimmers, Wright paper drills, Morrison wire stitchers and other Seybold products, are now sold and serviced direct by factory representatives.

Direct contact has always been the policy of the Harris Division in the sale and service of its presses; the two sales organizations are now merged.

The high standards of Harris service, which are recognized everywhere, are to be maintained for all Seybold products as well. Our "know-how" and full responsibility are back of every Harris and Seybold product in use.

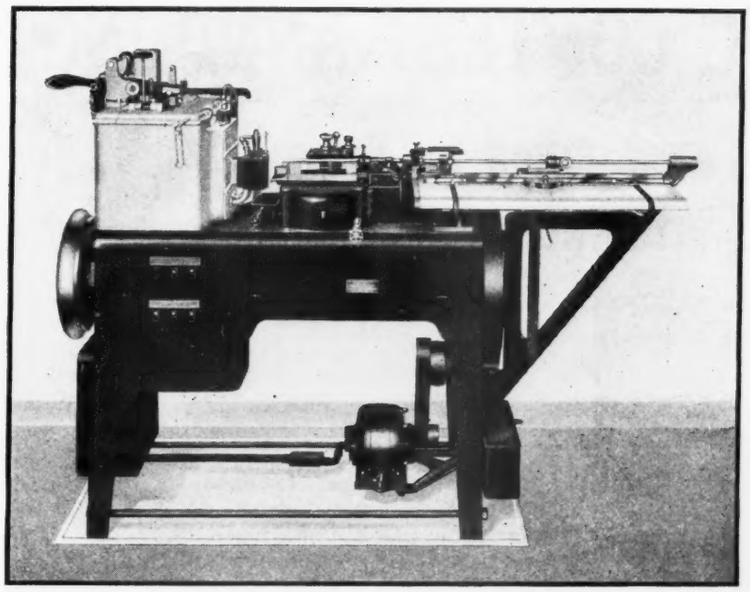
In the period of reconversion just ahead, all inquiries about Harris and Seybold products will receive prompt and attentive consideration from direct factory representatives.

HARRIS • SEYBOLD • POTTER COMPANY

HARRIS DIVISION
CLEVELAND 5, OHIO
Manufacturers of
OFFSET LITHOGRAPHIC
LETTERPRESS AND GRAVURE
PRINTING MACHINERY

SEYBOLD DIVISION
DAYTON F7, OHIO
Manufacturers of
PAPER CUTTERS AND TRIMMERS
KNIFE GRINDERS • WIRE STITCHERS
PAPER DRILLING MACHINES

THE ELROD WILL SOLVE STRIP MATERIAL PROBLEMS



Wide range of strip material from a single machine—1 to 36 point in thickness

Don't handicap your composing room for lack of sufficient strip material, wasting valuable time and slowing up production. Plan to have an Elrod on your floor to produce accurate, high-quality leads, slugs, rule and base in abundance for every possible need.

Elrod-cast strip is free from brittle breaks or welds, and will withstand severe printing, electrotyping and stereotyping requirements.

The Elrod is surprisingly simple to operate—there is no complicated mechanism to get out of order. Each part is designed for dependable service. Mold changes are easily made.

The daily use of Elrod in hundreds of plants is evidence of its efficient, economical operation. Let us give you more information about it.

LUDLOW TYPOGRAPH COMPANY

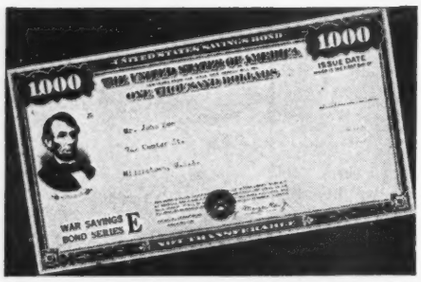
2032 Clybourn Avenue + + Chicago 14, Illinois

ipi KEEPING IN TOUCH ipi

PREPARED BY INTERNATIONAL PRINTING INK DIVISION OF INTERCHEMICAL CORPORATION • AUGUST 1945

SPECIAL TENTH ANNIVERSARY ESSAY PRINTING CONTEST ANNOUNCED BY IPI

Event to be Marked by Extra $1,000 Grand Prize and Other Features



A $1,000 War Bond; special award for the winner of the Grand Prize.

Plans for its Tenth Annual Essay Contest, the theme of which is "Printing and World Peace", were made known today by International Printing Ink in cooperation with the National Graphic Arts Education Association. As in the past nine years, the Contest is strictly educational in character and is open to qualified students in the United States and Canada.

G. A. E. Also Celebrates

Also commemorating a decade of activity is the National Graphic Arts Education Association which was organized 10 years ago to "hold printing and education together." That it has clung to this ideal through the years and has done its job well is attested to in its Annual Report just recently issued.

$2,200 in War Bonds to be Given as Prizes

To commemorate this decade of Contests a Special Jury will award a grand prize of a $1,000 War Bond to the Printed Essay which has the highest score; according to its thoughtfulness of content, quality of writing, skill and originality of design, accurate composition and proof reading, good press work.

In addition, any essay winning one of the national prizes is eligible for one of five newly added prizes for printed essays, ranging from $100 first prize to $10 for fifth prize.

There will also be the regular Essay Contest prizes of a $500 War Bond first prize, $200 War Bond second prize, $100 War Bond third prize, $50 War Bond fourth prize, $25 War Bond fifth prize, and 25 prizes of $5.00 each, in War Stamps as awarded in previous contests.

Reward for the essay most attractively printed in color will be a handsome Silver Cup.

Silver Cup for Best Color Work

To encourage students to gain a wider knowledge of color and color composition, an engraved silver cup will be awarded the school submitting the essay most attractively printed in color, regardless of editorial content, thus affording an excellent opportunity for the schools' art departments to collaborate with their printing departments.

As a permanent token of their prowess, each of the five national winners will receive gold lapel pins, while the other 25 national winners will receive silver pins. Bronze pins will be presented to the local school winners. To the teachers in all cooperating schools, a certificate of honor especially designed by an outstanding graphic arts designer, will be presented.

Marking his 10th year as chairman of the Contest will be Harry L. Gage, vice-president of the Mergenthaler Linotype Company, who will be assisted by a jury of men prominent in business, the professions and the Graphic Arts.

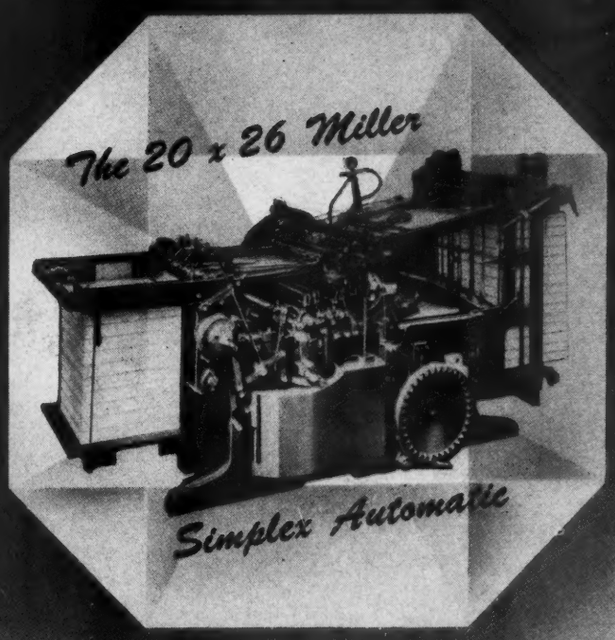
Who May Enter

Entrants must be registered students in the freshman, sophomore, junior or senior class of an accredited high school, trade school or preparatory school in the United States or Canada. Junior high school students in the ninth grade may enter. Entrants must not be more than 21 years old on December 1, 1945, and students below the ninth grade are not eligible.

Schools that have not competed in previous contests are urged to send for further details to: International Printing Ink, Empire State Building, New York 1, N. Y. Those schools that qualify will receive announcements shortly.

PUT A WAR MESSAGE INTO EVERY PIECE OF PRINTING
For source material, write GAVC, 17 E. 42d Street, New York

Basic Axioms in a Wartime Economy · No. 10



INDUSTRIAL GEM

"Producer par excellence . . ."

"Indispensable . . ."

"My moneymakers . . ."

"Finest built . . ."

"Superior to any other . . ."

Some self-evident and sincere comments of Simplex users

miller

YOU CAN'T TELL IN A CONFERENCE . . . CALL IN YOUR PRESSMAN

Charts will show production trends, but it is the man in the plant who knows the reasons why.

The cases are not rare where over-worked, over-age, or out-of-season rollers have caused definite production lags and lowered the quality of printing. This shows up in reduced output and lower profits.

Good pressmen know when they need new rollers. They know that Bingham rollers, made for the season, will give the continuous output of quality work that keeps production trends upward.

Don't try to get a few extra thousands impressions out of rollers that can no longer permit maximum production. Check your rollers frequently—and replace when necessary. There is a Bingham representative convenient to you. Consult him on any roller problem.

SAM'L BINGHAM'S SON MFG. CO.

Roller Makers Since 1847

Manufacturers of Printers' and Litho-Offset Rollers

CHICAGO 5

Atlanta 3	Des Moines 2	Indianapolis 2	Minneapolis 15	Pittsburgh 3
Cleveland 14	Detroit 10	Kalamazoo 12	Nashville 3	St. Louis 2
Dallas 1	Houston 6	Kansas City 6	Oklahoma City 6	Springfield, O.

PRINTING EQUIPMENT *Engineer*

Volume 70 **Number 5**

A technical publication for the mechanical executive responsible for printing production, equipment and supplies in the commercial, magazine, private plant and daily newspaper field.

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STANDARD BOOK ON ESTIMATING for PRINTERS—By Fred W. Hoch. Revised 1941 edition. This book is a primer for students and a reference for printers and estimators. Every printing plant should have a copy. Author explains all operations in commercial printing plant and shows production time allowance for each in hours and decimal hours. Size, 6 in. by 9¼ in., 268 pages, $3.75 per copy, cash with order.

PRINTING INKS—Their Chemistry and Technology—**By Carleton Ellis.** Bound in cloth, 6 in. by 9½ in., 560 pages, well illustrated. For printing executives, pressmen, photo-engravers, platemakers, ink manufacturers, chemists, paper-makers. Author stays close to printing plant. The solving of new production problems brought about by technological improvements, both in equipment and inks, created the urgent need for this book. Price $7, cash with order.

THE PRACTICE OF PRESSWORK—By Craig R. Spicher. We offer copies to our readers, at the special price of $4.00 per copy, cash with order. No printer should be without a copy (9000 copies printed).

LITHOGRAPHERS MANUAL — Compiled by Walter E. Soderstrom. Second revised edition. Technical information from copy to finished job. Nationally known technical men contributed the bulk of practical camera, platemaking and presswork information. Size 8½ in. by 11¼ in. Bound in red cloth, gold stamped. Many of the 368 pages are illustrated. Price $5 per copy, cash with order.

PHOTOGRAVURE—By H. Mills Cartwright. Covers all of photogravure's basic principles in concise and readable language. Rotogravure receives minor discussion but this is generally considered best textbook on photogravure process. Contains 202 pages, 34 illustrations, maroon cloth, size 6¼ in. by 9¼ in., $3.50 per copy, cash with order.

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PRESSROOM PROBLEMS AND ANSWERS—By Fred W. Hoch. Might be consdered a miniature encyclopedia since it contains answers to 334 pressroom problems which have been answered by Mr. Hoch. Written in language of journeyman pressman. Pressmen, production men, paper and ink manufacturers, electrotypers and photo-engravers will find this book of high utility when pressroom problems arise in which tendency is to lay blame on furnished materials used in pressroom production. Size, 6 in. by 9½ in., 258 pages, gold stamped blue cloth. Price, $2 per copy, cash with order.

HOW TO ADJUST WORK-UPS—By Wm. H. Lichter and Geo. F. Smalley. Booklet consists of 24 pages in which are analyzed and remedies are given for prevention and/or elimination of work-ups. Material written as result of actual plant experience. Size, 5¼ in. by 7¼ in. Price, $1 per copy, cash with order.

HANDBOOK FOR PRESSMEN—By Fred W. Hoch. Book written by authority on all phases of flat-bed letterpress production for the practical pressman. Contains 248 pages, 26 illustrations and 24 charts, $3 per copy, cash with order.

READING AS A VISUAL TASK—By Matthew Luckiesh, D.Sc. and Frank Moss, E.E. Most important research work to have been published in many years. For printers, designers, publishers, typographers and layout men. Readability of type, type faces, length of line, leading between lines, paper, ink, printing method and lighting are some of the factors involved in ease of reading. Size 5½ in. by 8¾ in., 428 pages, bound in maroon gold stamped cloth. Price $5 per copy. Please enclose remittance with order.

Please Note: All books orders must be accompanied by remittance . . . . This is necessary because of narrow handling margin allowed.

PRINTING EQUIPMENT *Engineer*

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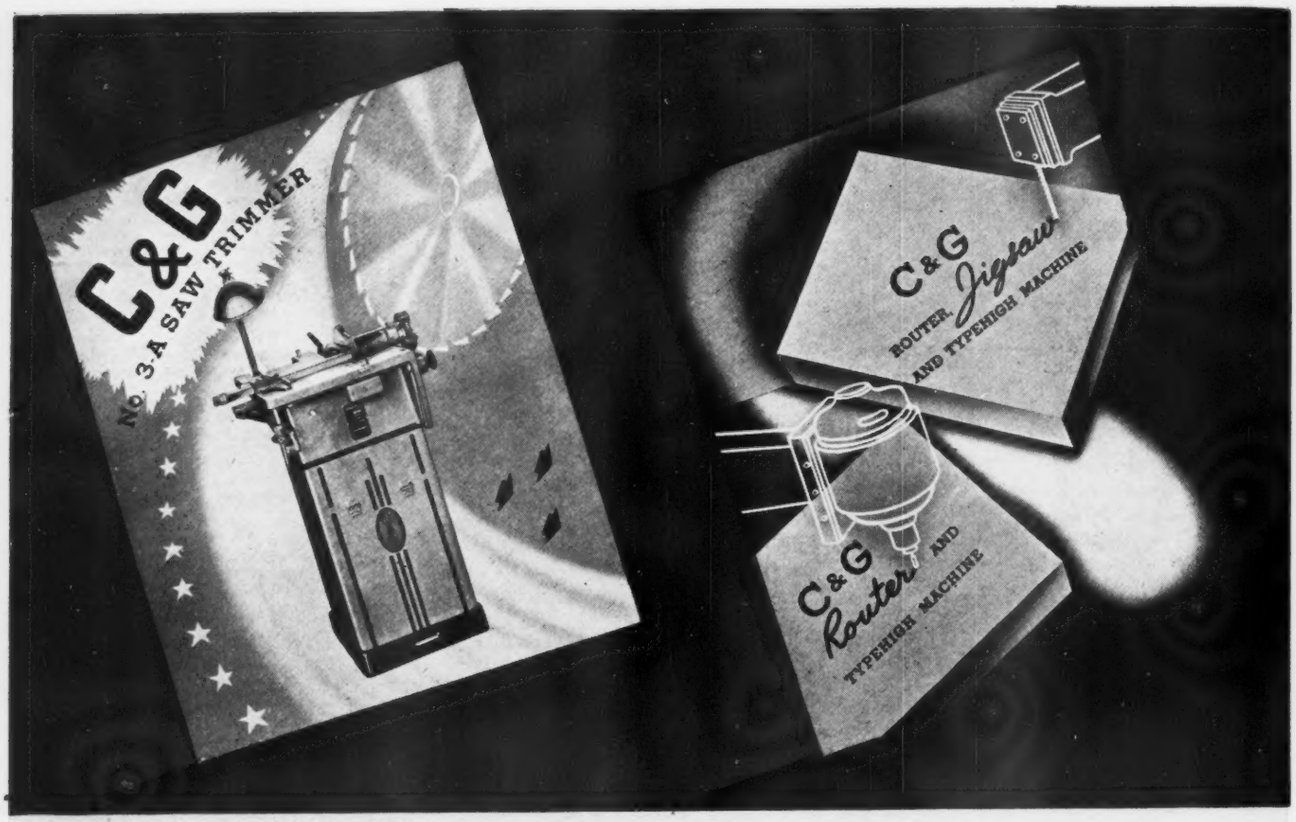


Here is Information

You will need in your Post War Planning

The beating of wartime production has made new Saw Trimmers essential in most composing rooms.

The C&G No. 3-A Saw Trimmer, famed for high-speed production, safety and speed of operation, is now being manufactured. Orders will be accepted for future delivery.

The booklet shown above (at left) gives complete information on the No. 3-A C&G Saw Trimmer and illustrates many of its exclusive features.

The C&G Router, Jigsaw and Type High Machine, and the C&G Router and Type High Machine are time-saving necessities in the up-to-the minute composing room. They help make the plant self-contained and eliminate the necessity of sending plates out for mortising, leveling or routing.

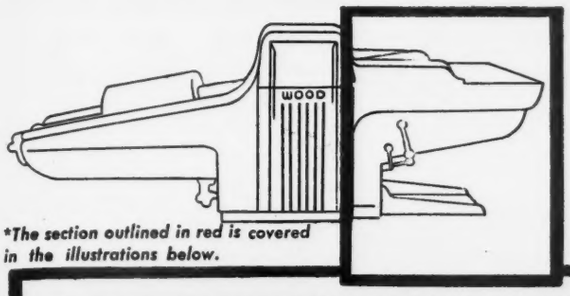
The booklet above (at right) will suggest new opportunities for you---opening a way for new profits that you have previously passed to others.

Both of these booklets are yours for the asking. Send for them today.

MILWAUKEE SAW TRIMMER CORP.

610 EAST CLYBOURN STREET MILWAUKEE 2, WISCONSIN

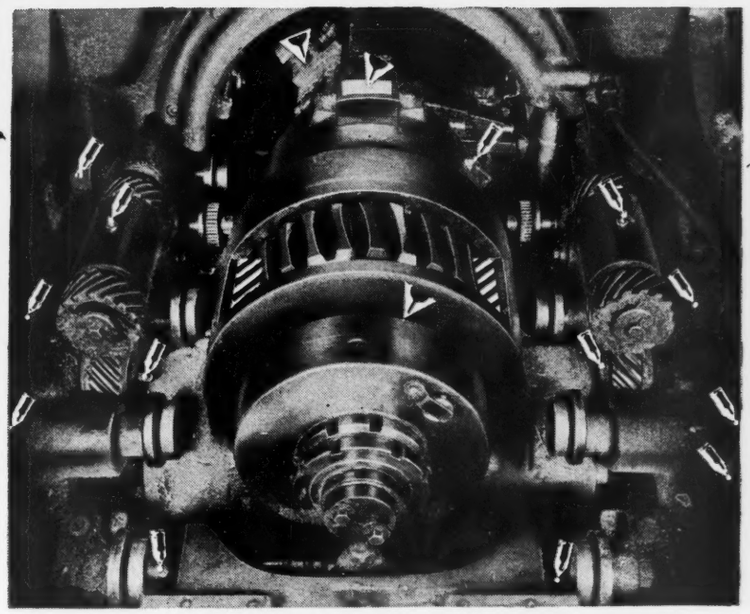
War-Time Maintenance Suggestion



*The section outlined in red is covered in the illustrations below.

For Lubrication of

HEAVY DUTY AUTOSHAVER



This is the third and last of the series covering the lubrication of the "Heavy Duty Autoshaver". If your files do not contain all three, write for the complete set — numbers 30, 31 and 32.

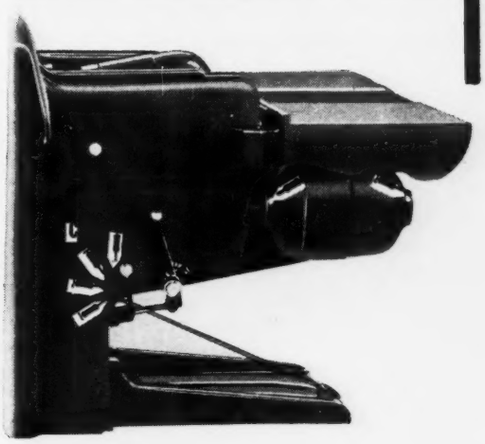
On the illustration to the left, all guards must be removed to gain access to the lubrication points. The process is simple and will repay you many times over in years of trouble-free service.

B Fittings do not show in photograph, but are on side as indicated by arrows.

Indicates a Zerk fitting. The gun furnished with the Heavy Duty Autoshaver for this purpose should be used with a good grade of alemite. Lubrication period — every six months.

Indicates the use of ordinary oil can. Use S.A.E. No. 30. Period for oiling — daily.

Remove guard and use a good worm and worm gear lubricant. Lubricant should be checked once a month.



C The four Zerk fittings indicated by this symbol are directly behind the motor and can be easily reached without removing any guards or plates.

Wood
NEWSPAPER
MACHINERY

WOOD NEWSPAPER MACHINERY CORPORATION
PLAINFIELD • NEW JERSEY
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501 Fifth Avenue, New York 17, N.Y.

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Printing and Lithographic Inks

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Pressroom and Management Agree...

...the HOE Press has everything!

Men who earn their living in newspaper pressrooms have an expert's slant on what a newspaper press should be in design, construction and operation.

So when pressmen and mechanical executives on many of the country's leading dailies say, in effect, the Hoe Super-Production Newspaper Press "has everything" you may be sure they are thinking of its anti-friction bearings, automatic ink control, single-stroke lockup, micrometer impression adjustment and many other advanced features which contribute to the overall efficiency of the Hoe press. Production men, especially, appreciate the skillful designing and engineering which gives the Hoe its fast, big-volume output, its fine printing and folding qualities, reduced ink consumption and reduced paper waste, its numerous safety features and great operating convenience.

The fully equipped Hoe Arched-Type Super-Production Newspaper Press, with Super-Production Folder, 3-arm Paper Reels, Electric Tensions and Full-Speed Pasters, certainly has everything a pressroom expert could desire — including an undivided responsibility for trouble-free operation of all parts.

And the expert judgment of pressroom personnel is widely confirmed by expert management. You'll find Hoe presses smoothly turning out the big runs of many of the great American dailies which demand — and get — the maximum in press performance, durability and low maintenance.

When you contemplate a pressroom replacement consider this widespread agreement on Hoe — and send for the Hoe representative.

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BRANCHES: CHICAGO • BOSTON • BIRMINGHAM • SAN FRANCISCO

Sowing the seed for a Victorious Peace

. . . And the Graphic Arts will lead the way. In printed word and an avalanche of advertising they will cover America to promote the sale of products of factories, farms, forests and mines, to keep production continuous—employment at its peak, and KEEP AMERICA PROSPEROUS.

In planning post war marketing and selling, the team work of the Graphic Arts, that wonderous combination of Publishers, Printers, Lithographers, Advertising Men, Artists, Engravers, Machinery Builders, Paper Makers, Ink Makers and others, must sow the seed to show the way.

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Albany Baltimore Birmingham Boston Charlotte Chicago Cleveland Dallas Dayton Detroit Havana Jacksonville Kansas City Los Angeles MexicoCity Miami Nashville New Haven New Orleans Philadelphia San Francisco Seattle

Look to a CHAMP FOR GREAT performance

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And they're equally vital in a printers' roller. That's why GREAT performance is to be expected from AMERICAN ROLLERS. Systematically, methodically, by careful scientific manufacturing they've been given the stamina, the invincible endurance to make good. They can take hard drubbing . . . produce quality on the longest runs . . . stand the punishment of high speed presses because champion calibre is BUILT into them. That's why they're superior on any press. Order them. See for yourself the BIG difference.

AMERICAN ROLLER COMPANY
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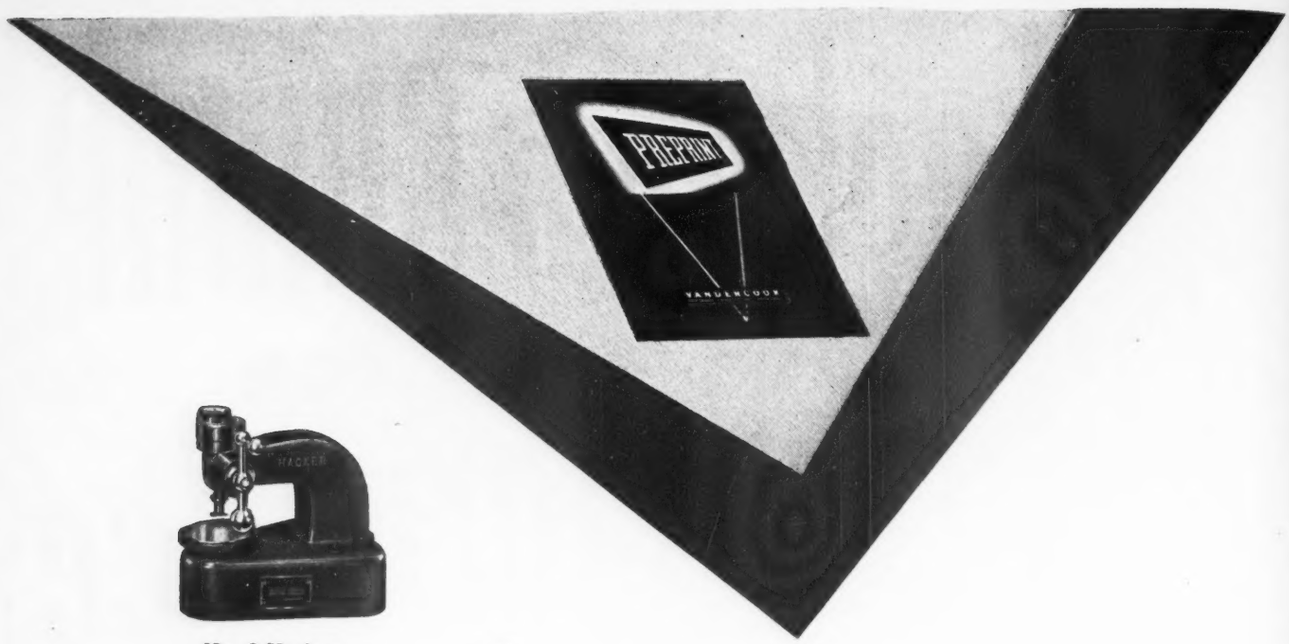
AMERICAN ROLLERS

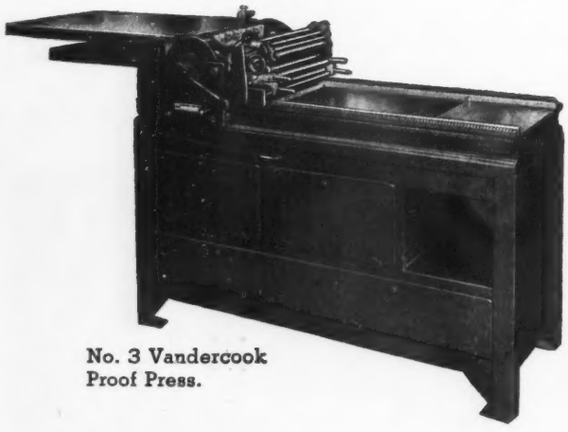
FOR VICTORY Buy War Bonds

ALL-SYNTHETIC RUBBER ROLLERS
COMPOSITION ROLLERS - PADDING GLUE
LITHOGRAPH ROLLERS - MAKE READY PASTE



No. 6 Hacker
Plate Gauge

No. 10 Vandercook
Block Leveller



No. 3 Vandercook
Proof Press.

This Circular can help you get *More Production* from your Equipment

Any preliminary work that can be done with inexpensive equipment, which will save time on high-investment machinery, is sound operation. It is a human trait to overlook many processes that actually mean loss in printing production. The Preprint Circular explains how simple PREMAKEREADY methods can greatly reduce makeready time, and permit maximum sheet output on production presses.

The circular will also offer you other suggestions in making your selection of PREMAKEREADY equipment when you are planning your postwar Preprint department.

The No. 3 Vandercook Proof Press, the Hacker Plate Gauge, and the No. 10 Vandercook Block Leveller are typical PREMAKEREADY machines.

VANDERCOOK
PROOF PRESSES • BLOCK LEVELLERS
PREMAKEREADY EQUIPMENT

VANDERCOOK & SONS, 900 North Kilpatrick Avenue, Chicago 51, Illinois

for PRINTING

by either Letterpress or Offset

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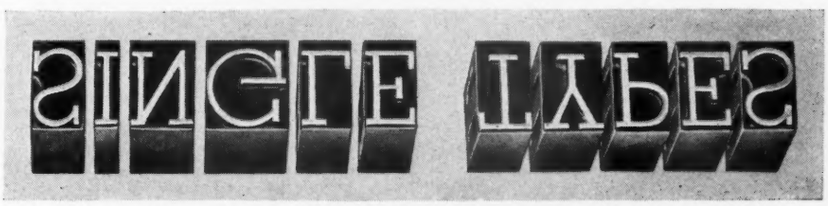

are best!

Those qualities in Monotype-cast type which give such clarity and sharpness to letterpress printing are no less important in producing the reproduction proofs from which press plates are made for printing by lithographic offset and gravure.

Brand-new Monotype-cast single types for every job, all of uniform height-to-paper, accurate in point size, with perfect printing surfaces, assure the best final results for printing by all methods. For a demonstration go to any printer, any trade or advertising typographer who has Monotype equipment.

LANSTON *Monotype* MACHINE COMPANY

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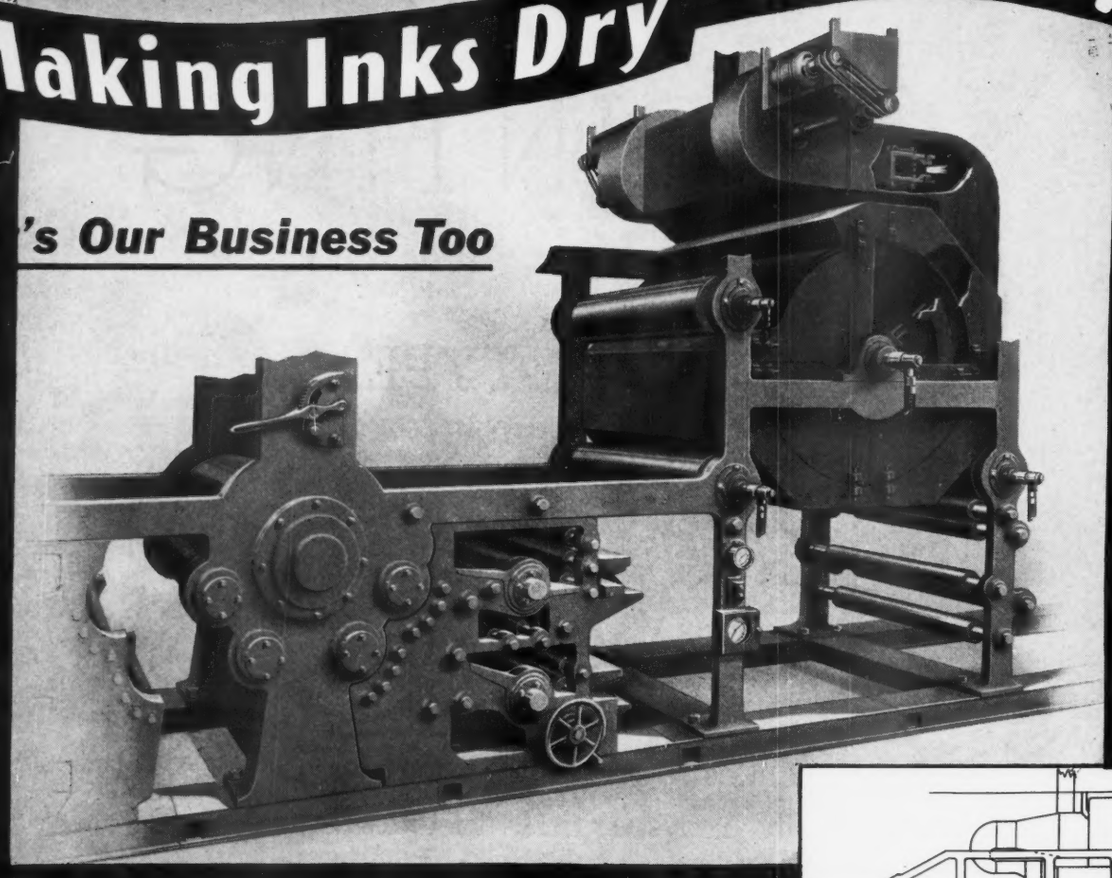
COMPOSED IN MONOTYPE STYMIE FAMILY AND MONOTYPE ARTSCRIPT, NO. 225

Making Inks Dry FAST!

's Our Business Too



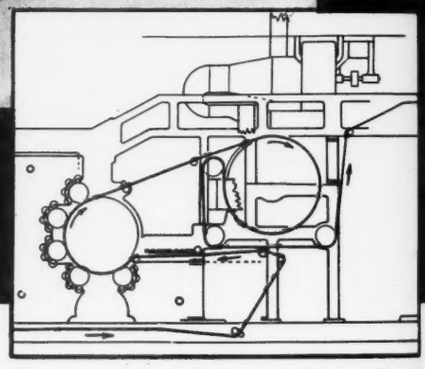


Diagram of Installation of heavy Super Heated Air & Steam Drum Dryer — 1st side 5 & 5 Color Press.

The drying installation shown here is an example of Levey engineering in the interest of better and more efficient printing. It is designed to dry Levey Flashdri inks, in 4-color 2 sides wet process printing, at web speeds up to 1000 feet per minute. Current tests show entirely satisfactory results. And several large publishers have already ordered equipment of this type for post-war delivery.

Because our concept of service to the graphic arts is based on the crucial test of *product performance* we feel we must offer the industry *more* than fine printing inks.

Levey engineers are constantly at work perfecting new equipment to help printers keep pace with the technological advances which are today such clear-cut evidence of progress in many great industries. We believe that opportunities for better printing techniques are limited only by the vision and resourcefulness of the engineering mind. If you have a problem we will welcome the opportunity to cooperate with you.

FLASHDRI • LETTERPRESS • LITHOGRAPHIC • GRAVURE

UNIT OF COLUMBIAN CARBON COMPANY

VICTORY, first: THEN-

PRECISION BEARINGS FOR EVERY PURPOSE, INDUSTRIAL AND DOMESTIC

War's demands still call for all the output of the NORMA-HOFFMANN factory. But, already, far-sighted manufacturers are working with NORMA-HOFFMANN engineers on their designs for new and better peace-time products equipped with PRECISION BEARINGS.

No "Re-conversion Problem" will hamper or delay NORMA-HOFFMANN post-war production. The moment peace is declared, all our vast facilities will be turned INSTANTLY to the production and prompt delivery of PRECISION BEARINGS for new and better domestic appliances and for new and better tools for industry.

Our Field Engineers, in all our District Offices, are ready to work with YOUR designers. Avail yourself of their experienced counsel NOW—without obligation, and of course in strict confidence. *Write for the Catalog—Today.*

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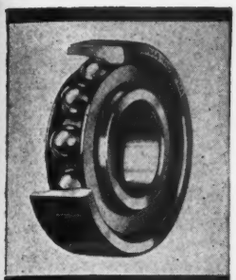
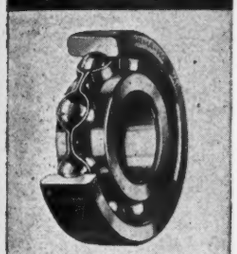
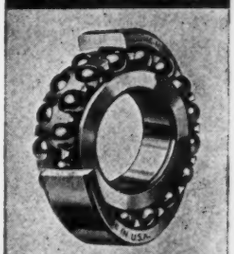


Separable (Magneto) Ball Bearing

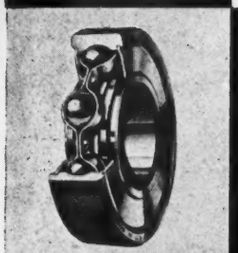
Litro ("CL") Composition Retainer Ball Bearing



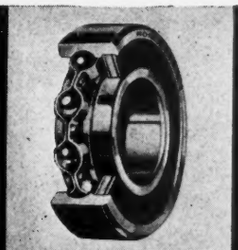
Single Row Ball Bearing



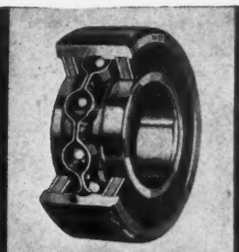
Double Row Self-Aligning Ball Bearing



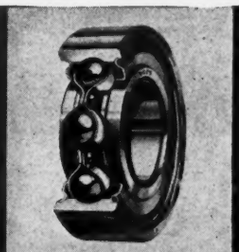
Shielded Type Single Row Ball Bearing



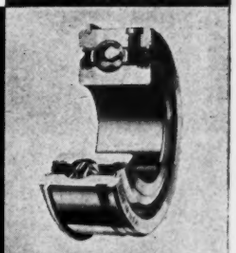
Single Felt Seal Ball Bearing



Double Felt Seal Ball Bearing

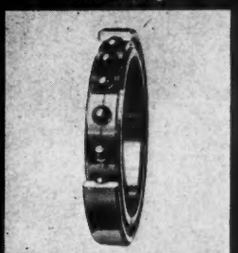


9000 Series (Feltless) Sealed Ball Bearing

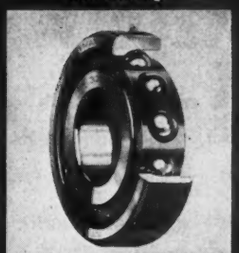


"Cartridge" Fully Sealed, Refillable Type Ball Bearing

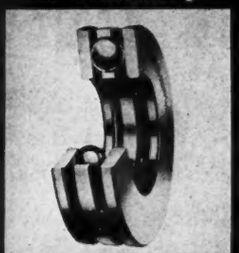
Double Row Ball Bearing



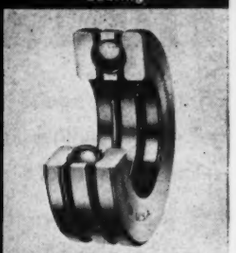
Extra Light Type Ball Bearing



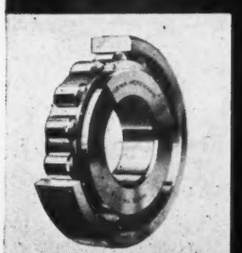
Angular Contact Ball Bearing



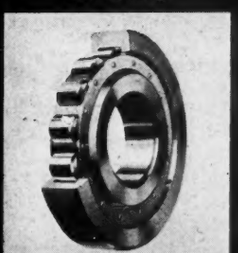
Extra Light Single Direction Ball Thrust Bearing



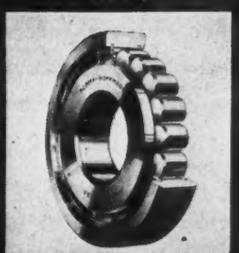
Single Direction Ball Thrust Bearing



Standard Cylindrical Roller Bearing

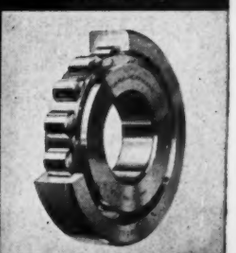


Type "E" Cylindrical Roller Bearing



Full Type (Retainerless) Cylindrical Roller Bearing

Extra Light Cylindrical Roller Bearing



Two-Lipped Cylindrical Roller Bearing

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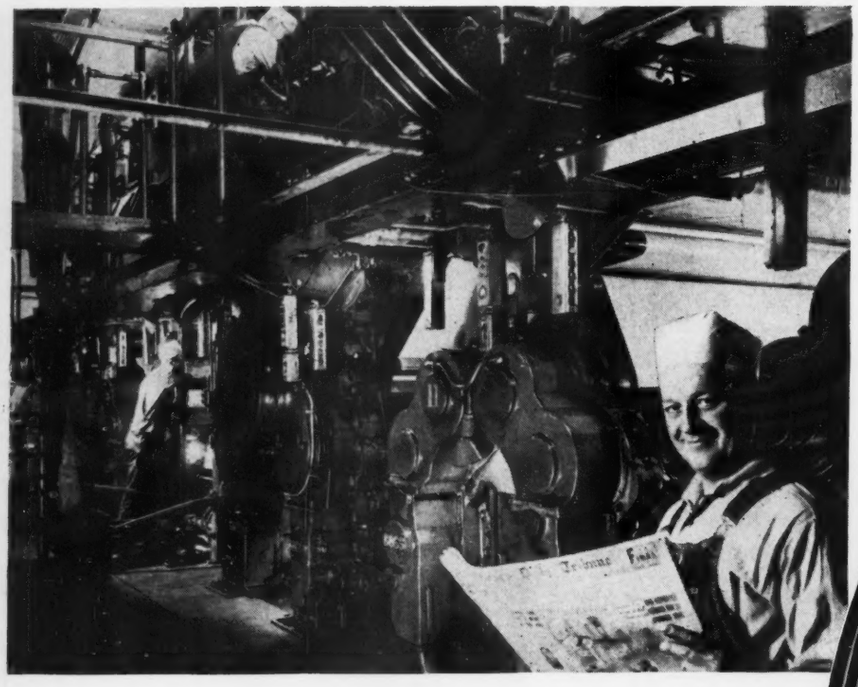
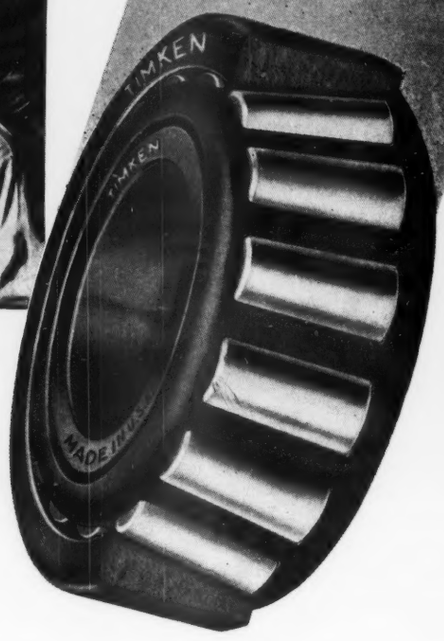


Goss Press installed at the Chicago Tribune. Capacity, 60,000 complete Tribunes per hour. Equipped with Timken Bearings on all plate and impression cylinders.



WITH

TIMKEN BEARINGS

Printers want speed—but they are not prepared to sacrifice quality to get it; and neither are their customers. The product of printing presses—like the product of all kinds of industrial machines—is being improved.

There is one sure way to step up press speeds and still maintain precision and that is by the inclusion of Timken Tapered Roller Bearings in your new or revised designs.

Apply Timken Bearings primarily to all plate and impression cylinders; in doing so you will be following a precedent established years ago by the Goss Printing Press Company, Chicago, and proved sound in practice ever since.

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TAPERED ROLLER BEARINGS

THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO

Second in a series of inserts dedicated to American Journalism, its past, its advancements, and its future.

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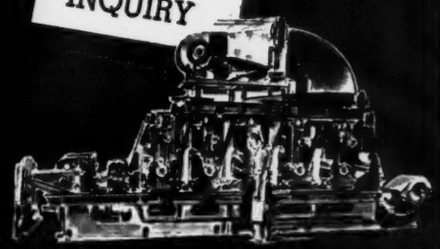

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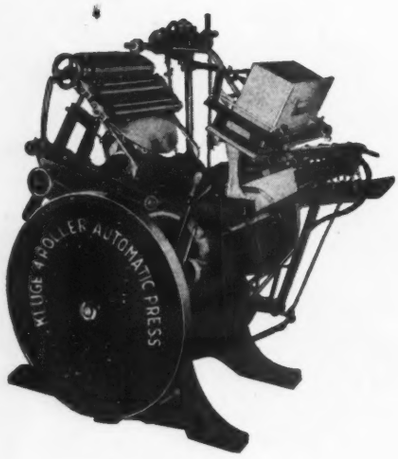
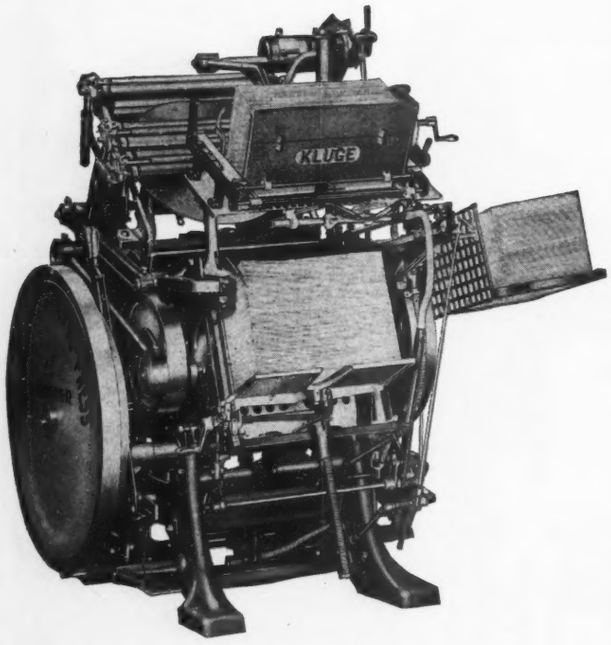
KLUGE PRESSES

IN YOUR POSTWAR PLANS





★ Today many printing plants are considering the new equipment they will need to handle the various types of work available after the war. We invite such plants to consider the KLUGE AUTOMATIC PLATEN PRESS that for 25 years has been a standard of quality for presses.

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★ The KLUGE AUTOMATIC PLATEN PRESS is made in two sizes, 10x15 and 12x18 and in several models with either four or six rollers.

★ Consider also, in your plans, the KLUGE AUTOMATIC FEEDER for use on either old or new series C & P Platen Presses or KLUGE Open presses. It is built for 10x15 and 12x18 Craftsmen presses.

★ Other equipment for your consideration is the KLUGE AUTOMATIC DIE-CUTTING and EMBOSSING PRESS and the KLUGE COMBINATION DIE-CUTTING and PRINTING PRESS. Write today for detailed information.

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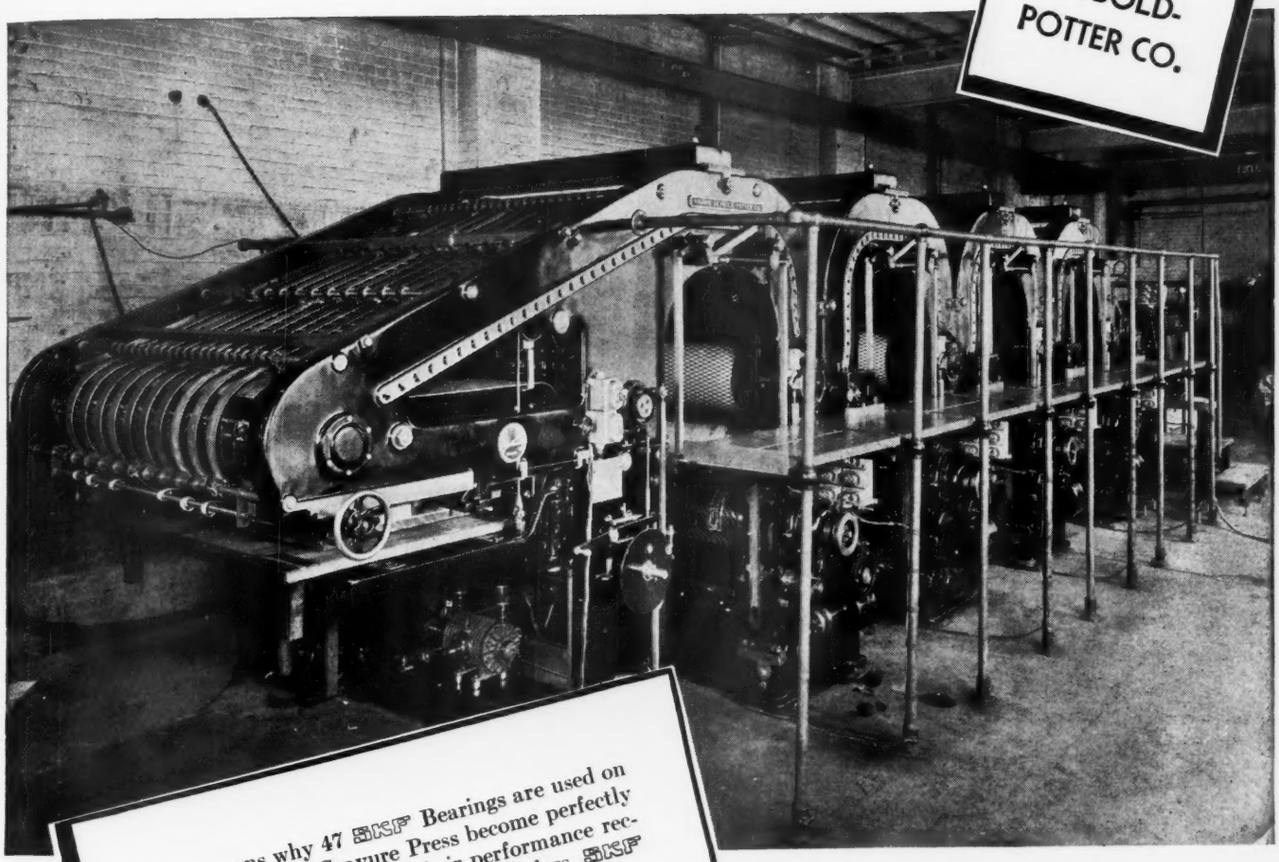
47 SKF BEARINGS FOR SMOOTH PRESS PERFORMANCE

BUILT BY HARRIS-SEYBOLD-POTTER CO.



The reasons why 47 SKF Bearings are used on this Four Color Gravure Press become perfectly obvious after a glance at their performance records. On plate and impression cylinders, SKF Spherical Roller Bearings assure rigidity . . . curtail waste resulting from vibration backlash and cylinder jump . . . assure close register and uniform application of color. On feeding cylinders and the doctor motion, other SKF also contribute to the smooth-running of this press. No adjustments are required. Lubricant consumption and operating costs are low. And production is stepped up. Advantages that wise engineers consider whenever they use bearings.

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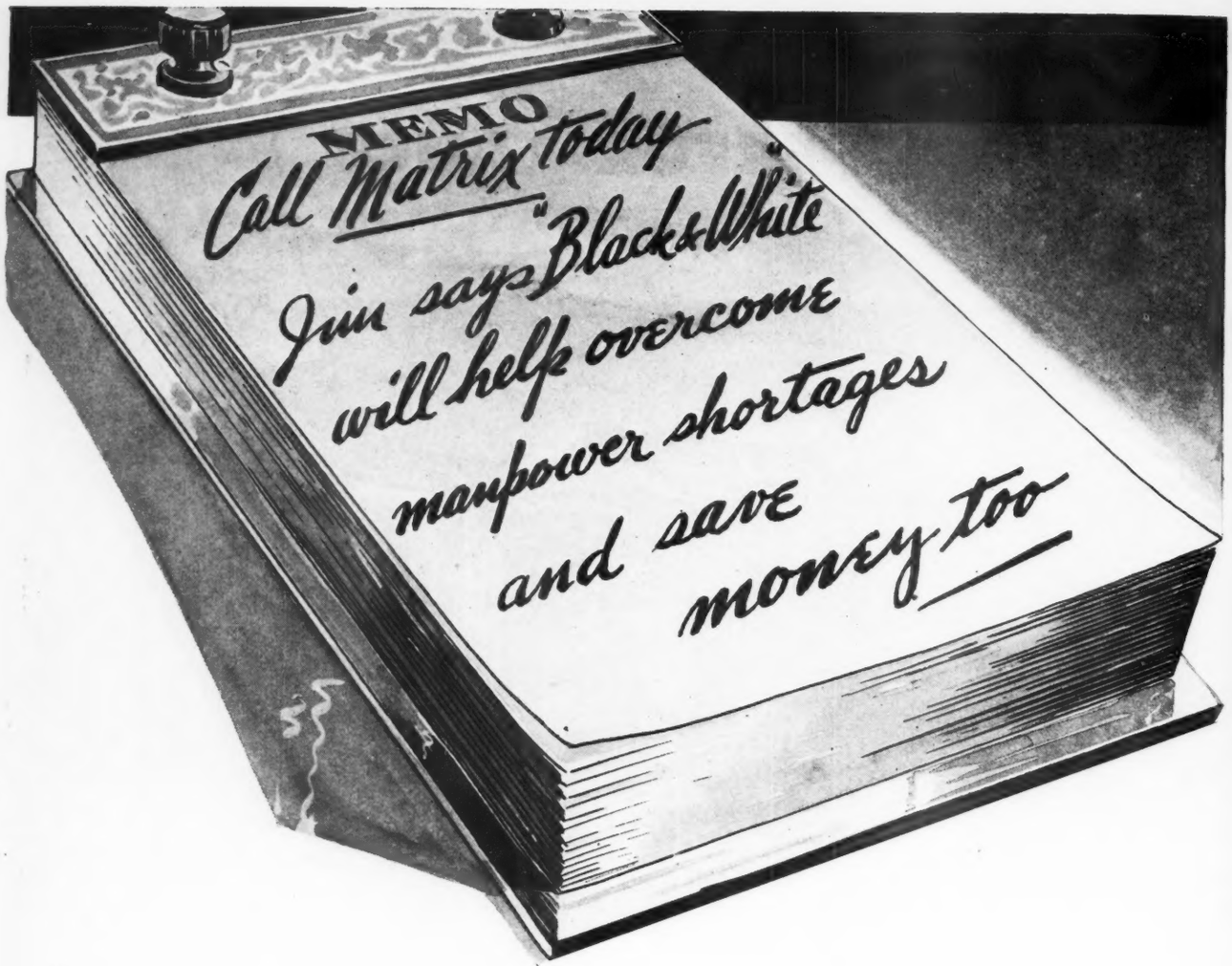

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L. W. CLAYBOURN

Nero Fiddled While Rome Burned

By L. W. CLAYBOURN*

**L. W. Claybourn, Inc., Consulting Engineers for Printers, Photo-engravers, Electrotypers, Chicago, Ill.*

CAN the letterpress printers rest on their oars, feeling secure because of the gigantic size of their industry? The writer does not think so. Let us not forget that the giant Goliath was slain by little David. Yet we have nothing to fear if we stop feeling so secure because of our size.

There are three methods of printing that demand recognition—letterpress, offset and rotogravure, but among buyers of volume printing, as well as commercial printers, these methods are somewhat controversial.

Rotogravure has made inroads in magazine and mail order printing, but, in the opinion of many, it has its limitations. There has been continued and noticeable improvement in this method and it serves a purpose, providing the job to be printed is of such nature and volume as to justify the starting cost of special etched cylinders and facilities for making same, which is a cost that must be taken into consideration in starting a rotogravure printing department. This type of platemaking is highly specialized and requires much equipment not used in producing plates for letterpress or offset methods.

Offset printing also has advantages and limitations. It too requires special platemaking facilities. Taking the overall picture, I have never been convinced that offset plates can be produced at a price that would justify the claims often made of the vast difference in cost between offset and letterpress plates.

Appraisal of Offset

I will concede that for short runs the offset printer can make a plate that will print by his method at less cost than could the letterpress printer if he were required to make either flat or curved plates for short runs, but the letterpress printer seldom makes plates for short runs. He prints direct from original plates, or from type, or in combination halftone and type, from locked up forms.

I doubt very much if the offset printer can even hold his own, from a cost standpoint, with letterpress, as a good modern precision letterpress curved plate will outwear and outlast two to three sets of offset plates. I question very much if the offset plates can be produced at one-half or one-third the cost of the letterpress plates for long runs.

The costs of making offset or letterpress color separations (negatives and positives) are about equal. From there on the cost must be distributed over the cost per thousand impressions the plates will yield.

But, without going into whose cost system is to be used to determine true costs, let's drop this discussion and see if we can both stay in a legitimately competitive business.

I have no quarrel with the offset printer, nor do I wish to criticize his method of printing. In fact, letterpress printers may be confronted with a job that is ideal for offset printing and should in fairness to themselves and to their customers, have it printed offset.

This does not necessarily mean that the letterpress printer should put in an offset department to do an occasional job that could be better printed by that method. On the contrary, he should be on a friendly basis with some offset printer, who could do such jobs for him. By so doing, both could reap profit without setting up competition. It costs money to sell printing, and certainly the printer who awarded such jobs to a friendly competitor would be entitled to some consideration.

Has Done Swell Job All Along the Line

As I have said many times in the past, the offset group has done a swell job all along the line, improving their product through intelligent research, selling their printing by good promotion and advertising, to say nothing of developing better machinery for producing offset printing, and they have contributed much toward creating demand for color printing.

Offset authorities claim $300,000,000 yearly gross volume and look forward to $500,000,000 during the early post-war period. What percentage of this amount of printing is represented by multi-lith is not known. Let us hope that the full amount represents high grade commercial and color printing, which would indicate a healthy trend in the printing business as a whole.

I have no accurate statistics at hand on the volume of letterpress printing—black and white or color, but I do know that it will tremendously exceed in volume both of the above-mentioned methods.

Printing Is Developing into Highly Specialized Business

Printing is rapidly developing into a highly specialized business. No one printer can print and print profitably everything printed, from a cereal box to a seed catalogue. Some jobs are ideal for letterpress and other jobs lend themselves to offset. There is ample room for both methods if we can differentiate and be honest with ourselves.

The offset printer uses methods that could be used to good advantage by the letterpress printer, and, by the same token, the letterpress printer has in use to-day machinery, devices and mechanisms that are applicable to the offset method, are more needed and can be more logically used in offset than in letterpress. This statement may be challenged and I stand ready to accept the challenge and give proof.

Mechanically, offset and letterpress high-speed rotary presses do not differ greatly in their operation and adjustments. Both run about the same speed, use practically the same feeders, both must have good ink distribution, there being a difference, however, in the type of ink roller used. Offset presses print indirect; that is, the plate is inked, prints on a rubber blanket and, in turn, is offset to the paper; whereas by letterpress, the plate is inked and prints directly on the paper. Both machines are built with the same kind of tools, by the same type of organization, by the same type of engineers, and either type could be built by any competent press builder.

The one outstanding difference lies in the type of plate used, and neither method is worth a hoot without good printing plates. Our primary trouble is plates. No matter how well presses are designed and constructed, with all the precision built into them and with all the gadgets attached to them, we cannot print better than the values photographically printed and etched into the printing plate.

This applies to both offset and letterpress methods. The printing press merely co-ordinates materials over which it has no control. If the plates, ink and paper are carefully selected, to meet all requirements, the job is a success. On the other hand, if the plates are not made to print well on the stock selected, if the ink does not trap or take to the stock properly, the job is a mess. Therefore, the reputation of the printing press depends upon someone's judgment in selecting materials of predetermined fitness to meet the requirements of the job.

Now we are again back to my pet peeve—plates. The offset or lithographic group has spent hundreds of thousands of dollars on research and today they are producing printing by the offset method that challenges the best of us to distinguish it from letterpress. They are printing on the same paper stock as used by letterpress printers, whereas just a short time ago they printed on rougher papers and heralded softly delicate pastel colors. Today they give you gloss inks on almost any kind of stock, and this is largely because of the development of their printing plate.

Taking Leaf Out of Other Fellow's Book

Just when are the letterpress printers going to have their inning, or are they going to strike out, looking without swinging? We have the best method known for faithful reproduction. We have more opportunity for improvement than has any other method. Still we stick to wasteful methods and antiquated ideas, largely through precedent or habit. Let us take a leaf out of the other fellow's book and profit thereby.

The offset group started from scratch just a short time ago. They made many experiments, had many failures, but kept on trying, and through trial and error they advanced rapidly. By and large, relief printing can match and surpass any printing method known, having wider latitude, greater flexibility and broader range of technique. We do not have to spend a lot of money to improve our methods and move forward. Learn to use the tools we have, cast aside old ideas and adopt modern ones. Let's stop fiddling.

Making Plates Properly

The letterpress printer is still making ready, patching, cutting, shimming up his plates, using all kinds of artifices (usually termed overlays and underlays) to make his plates print. Sometimes the cost of applying this so-called art actually exceeds the cost of his printing plate, ninety per cent of which is a lot of hokum, yet boasted of as a great feat. Many of our maestros have secret methods of application, which in the eyes of some people make them great printers.

Now, let's call a spade a spade. If the original printing plate were properly etched with proper depth, proper tone values, proper separation, and if the duplicate curved or flat plates were made to fit the cylinder and bed to precision or like accuracies, with good distribution of pigmented color (printing ink), printed on suitable stock, on a printing press built to precision, as they are today, all of this so-called patching and cutting would be unnecessary.

Before the day of the precision plate, this so-called makeready was of great importance and a pressman, with proper skill, could level up plates with this makeready, compensating for the hills and valleys which made this operation necessary. He truly could be called an artist. But plates that are available to-day make this operation unnecessary.

Insisting on Proof of Plates

I will admit that many plates furnished today require this time-consuming and costly operation, but this is uncalled-for and should be avoided by demand of precision plates. However, this grand word precision is greatly abused and printers should insist upon proofs of the plates they buy. If the proof is made under precision conditions, it will attest the quality of the plate.

Because of habit and precedent set up in our time-honored methods, many a pressman has been taught to apply some sort of makeready, while, in a true sense, he is simply leveling up the form. He does not seem to realize that in this day of precision and accuracy, the use of precision-made plates makes the application of his art unnecessary. Consequently, the precision plate has no chance to prove its worth.

Must Learn to Use Modern Tools

We must learn to use the modern tools of today and treat the product of precision methods differently than we handled the faulty materials of yesterday. I can show proof of many jobs where we stripped costly makeready from the press (overlays and underlays), replacing them with a tissue patch here and there, yielding a perfect job in a fraction of the time spent on unnecessary treatment.

Never in the history of printing have we been so curtailed, hamstrung and faced with so many perplexing problems as experienced during the past four years because of the war. However, if we are alert, we can apply to printing many developments, both mechanical and chemical, that have come by reason of this war and handsomely profit thereby. Now is the time to prepare for tomorrow. Planning and plant engineering is of great importance now. Every plant must face rearrangement periodically, because with the growth of business, new machines are installed in space available without regard to efficiency.

Improvement Toward Perfection Will Never Cease

Before a ship is repaired and repainted, the barnacles must be removed, and every print shop that has been in operation over a period of years has plenty of barnacles which should be discarded. We cannot afford to wait for the ideal or perfection, because improvement toward perfection will never cease. If America had waited for perfection of all items of fighting equipment, we would have lost the war. We used the best we had and learned to use it efficiently, at the same time developing and improving without letup, to the end that we produced implements of war of every kind in an unbelievably short time, surpassing in achievement the expectations and predictions of our best engineers.

We have never been a warring nation. We have spent our time in producing durable goods to be enjoyed by our people, but we proved our capabilities in meeting this emergency, outstripping in production nations who, for a quarter of a century, had spent their all preparing for war.

Implements of war must be complemented by properly trained personnel, and this is the pattern that must be followed in our industry. This second World War has featured the use of fine mechanical equipment of every kind, as well as chemicals. Our boys joined the Army, Navy and Air Corps unschooled in the art of this type of war, some of them not knowing the difference between a screwdriver and a Stillson wrench. They were given intensive training to fit them for their respective duties and advanced according to their aptitudes. Many are

returning to us skilled technicians, to take their place in peace time industry.

We can use these boys to their advantage, and to the benefit of the employers. Their training will fit into our picture perfectly if used intelligently. We should follow the example set by the army, our schools and colleges: advance men according to their talents, and from these we will develop leaders.

Our General "Ike" said in one of his talks when New York honored him: "Our soldiers are perfectly normal human beings and don't have to be psychoanalyzed". Of course not. They were thoroughly examined before induction in the forces and then given thorough training.

So in our industry, a prospective employee should be examined for physical fitness and given aptitude tests to determine the type of work for which he is best suited. With careful instruction he can be developed quickly into a skilled craftsman.

Printing is an exacting business and our workers should be chosen carefully. We have many departments of varied technique, both mechanical and chemical, that need new, fresh personnel to bolster them.

Success of Printing Dependent Upon Many Major Industries

The success of printing depends upon many major industries—art, engraving, electrotyping, ink-making, paper-making composition, etc., utilizing machinery of every kind in our operation, as well as laboratory and testing equipment. I can think of no other single business that has the broad scope of the printing industry.

It follows that in order to be a successful printer, you must have a good mechanical department, because printing is mechanical; to be a successful printer, you must have personnel schooled in the chemical phase of our business, because printing is chemical; to be a successful printer, you must have good artists, because printing demands artistic technique—layout, design, etc. To be a successful printer, you must have a planning department, headed by those trained to coordinate these various functions into a smooth-running organization, eliminating buck-passing and confusion. Do not make your press room a laboratory. All materials should be tested before reaching the productive center. Down, idle presses are costly.

Last, but not least, the sales organization needs help. Train salesmen to sell the kind of printing that fits your equipment. Help your customer choose materials suitable for his job, so that you can be proud to have the finished product bear your imprint. Too many times printers are accepting work for which the customer furnishes paper, plates and inks that are not compatible and unsuited for the job or the equipment and methods employed, resulting in dissatisfaction, no re-orders and a lost customer, all because a salesman, in his anxiety to get a job, unintentionally sold his employer "down salt river".

Employee Cooperation

Another big factor in the success of a printing plant is co-operation among employees. Petty jealousies are too common in our industry. As an example, a worker may be making mistakes, idling, wasting materials under the eyes of a coworker who could easily lend a helping hand and set him straight, but who, instead, stands by and laughs, permitting deliberate waste that is reflected in his own income. Every employee should realize that his earnings are based on profits, that he participates only in profits, and that he cannot earn raises on losses.

Every foreman or superintendent should train his men to take over his job if necessary. That makes him a real leader and fits him for advancement. If he does not see fit to cooperate in this way, he may find himself unable to take advantage of promotion, not having men capable of taking over his work. Because of his failure to train men properly, he is stuck in his job year after year, with no future.

Three Objectives for Executives

It is reasonable to assume that every executive or department head of a print shop is ambitious to improve and advance in his art. To do so he should have three objectives: 1—The predetermination of the fitness of materials to be used on the job before production starts. 2—The coordination of processes, materials and machines, resulting in elimination of unnecessary waste. 3—Production of an improved quality of printing in greater quantities at lower costs.

We are a growing, intelligent, openminded and, therefore, progressive people. We will accept modern mechanization, make it serve us wisely and make it the instrument of our future. Let us cast aside antiquated methods and machinery requiring feet and hands (sheer drudgery) in their operation. Let us keep the letterpress printing and platemaking industry in its position of unchallenged leadership.

Letterpress Has Greatest Possibilities

After exhaustive investigation of the whole printing field, I am still convinced that regardless of the rule-of-thumb practices persistent in our industry, letterpress has the greatest possibilities. Our solution is to overhaul our well-known standards, improve and continue them, rather than seek some new and foreign method of printing. Letterpress, with its future, is still tops in my book.

I am a firm believer in research and development. There is a multiplicity of new and startling improvements in both machinery and methods now on drafting boards and in laboratories, planned by engineers and scientists for our future benefit. How soon these new methods and equipment will be available is unpredictable, as we still have a war to win. However, we have enough to do without giving these new developments too much thought for the present. Get your house in order and operate your present equipment more efficiently; systematize, plan and pave the way for the future.

Miehle Explains Press Availability Situation

The Miehle Printing Press & Mfg. Co., Chicago, under date of July 9, issued a letter to the trade with respect to the time when new Miehle printing presses will become available.

With particular reference to WPB's recent revocation of Limitation Order L-226, Miehle points out that L-226 is not the only restriction which must be lifted before its factory can again commence the manufacture of printing presses.

In the letter it is explained frankly that "It is still necessary that contracts for war material be continued. Castings, forgings and other materials needed in the manufacture of printing presses are still not available in quantities. Foundries and steel mills are not permitted to make deliveries against our orders until orders with priorities for war needs have first been filled. When there will be a surplus of materials over and above the needs for war is anyone's guess.

"While waiting for the material situation to clear up, wherever possible we are rearranging our plant so that we will be ready to begin the manufacture of printing presses as quickly as possible after materials and labor not needed for the war effort become available.

"You may have wondered why our salesmen have not called on you since the beginning of the war. The fact is that most of them were brought into the factory where their services could be used in the war effort. As speedily as the need for their services in the factory no longer exists, they will be relieved and returned to their respective territories. Our Government has asked that all unnecessary travel be curtailed until the war with Japan is at an end. However, they will do whatever they can to give you assistance in planning your post-war needs."

MATERIALS HANDLING

This book by Harry E. Stocker is of vital interest to mechanical and production executives in printing and publishing plants. While not written specifically as a treatise on materials handling in the printing plant, yet a great deal of its text will be of value in the handling of materials in the plant and outgoing shipments from the plant.

Bound in light buckram, 309 pages, many illustrations, size 6 in. by 9¼ in. Price $5.00 per copy, cash with order.

PRINTING EQUIPMENT ENGINEER
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Rx for Commercial Letterpress Printing

By J. HOMER WINKLER*

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AN increasing number of those interested in commercial letterpress printing are evincing concern as to the future competitive position of that process as related to offset-lithography. More specifically, they hope that an increase in the production of offset-lithography is not going to decrease their own future volume of business, or markets for letterpress printing. A sincere desire to maintain a healthy volume of letterpress printing that will not be threatened by any competitive process is present. It is also recognized that an increasing number of offset presses are being installed and that there is an acceleration in the percentage of the total volume of commercial printing being produced by offset-lithography. A continuation of these trends could adversely affect the letterpress volume. For those interested in maintaining and increasing the present letterpress volume a real problem exists.

There are some proponents of letterpress that brush aside the gray clouds with statistics of the printing and publishing industry taken from the 1939 Census figures. They point out that the value of products of offset-lithography amounted to less than 9 per cent of the total printing and publishing dollar volume and that gravure processes were used for only about 1 per cent of the total. For commercial printers, figures to consider are those quoted by R. V. Mitchell, chairman of the board, Harris-Seybold-Potter Company in a recent talk before the Cleveland Club of Printing House Craftsmen. According to Mr. Mitchell, the value of products of the offset-lithographing industry amounted to only about 12 per cent of that produced by letterpress in the General Commercial (Job) Printing classification in 1929 and in the preceding years to 1914. By 1937 this percentage had risen to 23.4 and it is estimated that in 1944 it was 34 per cent. Projected annual volumes of postwar years indicate this percentage to reach 50 per cent, according to Mr. Mitchell.

Furthermore, according to the published results of a survey (*The Inland Printer*, June, 1945—pp. 39-40) the number of printing establishments that produce printing by both letterpress and offset-lithographic processes may increase from the present percentage of 20 to nearly 50 per cent in postwar years as the equipment becomes available.

AUTHOR'S NOTE:

THIS article has been prepared from an unbiased point of view. No favor or prejudice as to which process is best for the greatest amount of commercial printing is intended. Technical considerations only of process operations have been used as a basis for recommendations. It must be admitted that the process attaining the highest degree of technical development, thereby permitting the highest speed of production at the lowest cost and possessing satisfactory quality, will be the choice of practically all of the progressive commercial printers, regardless of skepticism, wishing, and sales arguments.

Frequently Difficult to Identify Process

Other proponents of letterpress still refer to the "inferior quality" of offset-lithographic printing as an unsurmountable obstacle in the path of a continued growth in business volume of that process at the expense of letterpress volume. Frequently it is difficult to identify the process used in the production of a given specimen. Within the past few years, informative articles have been thought necessary and have appeared in two or three trade journals explaining the different identifying characteristics in the appearance of specimens produced by letterpress, offset-lithography, and gravure. To be factual, apart from the people engaged in the printing industry and those who use printing in their work, there are few who know that printing is accomplished by more than one process. Variations in appearance are attributed by them to quality irregularity only.

This all sums up to the existence of a sizeable competitor for a large slice of the commercial letterpress business. With the problem thus stated, what to do about it? The answer is simple—meet the competition all along the line. The doing is not so simple and requires further analysis.

"Nest Egg" in Each Process

Assuming that there will always be a demand for some printing to be accomplished by a specified process, that practical limitations of some jobs permit of no choice of the process to be used, and that by preference, certain processes will be employed by some printers; it means that each of the processes will have an assured volume of production that is relatively free from process competition. This volume may be considered their nest egg—their lowest level of business volume, and although it is indeterminate, it certainly must be lower than the available productive capacity for each of the processes.

Where Interests of Letterpress Lie

Since this lowest level of business volume is unsatisfactory to most printers, the competitive activity of garnering an increased percentage of the volume of commercial printing that is not earmarked for any particular process (which is considerable) becomes a serious business. Operators in this field are especially interested in the relative technology, speed of production, and costs of the particular processes. It is in this field that those interested in promoting letterpress printing are located. This group has nearly lost its identity because of the presence of so many printers and supply companies flying the standards of two or more processes. If a particular process is to be improved and promoted, then the operators primarily concerned should be identified, and their support in the mutual cause enlisted.

First Remedial Action

The first remedial action indicated is the formation of an organization of those interested in the promotion and expanded sale of letterpress printing. The organization must be carefully planned and adequately financed. Suitable activities of the organization could be those concerned with management, produc-

tion, and research. From the standpoint of the needs of the individual companies producing letterpress, it will be necessary for the organization to provide the pertinent information, data, publications, and services to enable it to operate at maximum efficiency and at a profit.

Unit Service Must Be Organized

The company member will of necessity want to know what jobs can be handled profitably from all considerations such as personnel, equipment, production schedule, quality, etc. Plant equipment must be scrutinized in each company as to its limitations, immediate and future value. Where indicated, investments in new equipment and repairs should be made. Rotary presses should be installed where warranted. The personnel phase of the company deserves particular attention. A new building, or an addition, or a move to smaller quarters may be advisable. Plant layout may be susceptible to improvement. Departments may need expansion or reduction. The use of trade facilities may be more profitable and flexible than to operate a department. Above all, a sales package, offering unit service, must be organized. It should be made easy for a buyer to purchase a letterpress printed job from a single sales representative, instead of purchasing engravings, electrotypes, paper, composition, etc., separately before placing the printing order. A complete printing service extending from the idea to the finished product is needed. Close working arrangements with supply companies having an understanding of the problems of production would make this possible. Planning consultations and production conferences with the suppliers could be very effective in eliminating lost time and in reducing production costs.

Many of the above problems would be studied as part of the activities of the management committee of the letterpress organization. All of the phases of the letterpress printing plant operation dealing with costs, sales and administration would constitute the field for the work of this committee. A wealth of published material and recorded experiences are already available and could serve as a background in the efforts of this committee.

Production Committee Activities

The activities of a production committee of a letterpress organization could be of extreme value to individual companies. It would seem that since there are only a relatively small number of types of job letterpresses available, and since many years of operating experience with each type on various kinds of jobs have been recorded, a "best" way of handling a given kind of job on a certain type of press could be outlined. A manual of standard "methods" or "practice" could be collated from existing records that should prove useful in better than 90 per cent of the individual jobs. This same idea could be applied to most of the materials and operations in a letterpress plant. Electrotypes, rollers, ink, paper, etc., are products regularly used and abused. Countless informative articles about their care and use have been published and forgotten. If this information were collected, expanded, brought up to date and published in easily understood language in book form, it would constitute a valuable reference. A number of such publications would be of assistance in the training of printing craftsmen. A production committee could do much to simplify, standardize, improve, and disseminate accurate information concerning the many operations in a letterpress shop. New materials and processes could be evaluated and encouraged as one of the activities of the committee.

J. HOMER WINKLER

Offset Growth Due to LTF, Inc.

The tremendous growth of the business volume of offset-lithography within the past twenty years is due largely to the activities of the Lithographic Technical Foundation, Inc. The research work conducted by their laboratories at the University of Cincinnati was a major contribution to the technologic advance of the process. The encouragement and assistance given by this laboratory to the development and research work of individual supply companies was equally as effective overall, as the work accomplished by the laboratory itself.

The letterpress process needs similar technical research. There are certain definite limitations that must be removed, or reduced from letter press production before comparable press speeds and costs of production will reach the desired figure. These problems must be analyzed and clearly defined. An effective research study will be necessary to explore all possibilities of solution. The Research or Technical Committee of a letterpress organization could encourage, supervise, and coordinate research studies on all phases of letterpress printing.

Commendable Amount of Letterpress Research

At the present time a commendable amount of research is in progress directly connected with the letterpress process. It is not possible to estimate the expenditures of the various supply companies on research and development. It is known that many companies devoted to the manufacture of presses, typesetting equipment, printers' rollers, inks, paper, various pieces of mechanical equipment, chemicals for photoengraving, engravers' metals, and a number of other items, are working feverishly to solve problems involving their product and to develop improved materials and processes. It is also a matter of record that the electrotyping industry has a creditable background of over twenty years of continuous research on their manufacturing processes. The work was originally sponsored by the International Association of Electrotypers and Stereotypers. For the past four years research on electrotyping processes has been under the sponsorship of Printing Plates Research, Inc., a non-profit research group of eighteen electrotypers. This activity has been expanded recently. A study of photo-engraving processes has just been initiated by Photo-engravers Research, Inc., a group of forty photo-engraving companies. Several other research activities are under consideration.

An overall coordination of and cooperation between the individual efforts is desirable. The emphasis of most of the present research is still on the production problems of a particular industry rather than for the broader aim of process improvement.

Suggestions for Solving Needs of Letterpress Printer

The real technical contributions that would solve the needs of the letterpress printer may be summarized as follows:

1. The development of a high-speed rotary press economically practicable for short runs.

2. The development of a press plate for a rotary press that is durable, inexpensive, easy of attachment, and that may be quickly produced.

3. The development of a fast-drying ink and method for instantaneously and inexpensively drying ink.

If these three items were available to letterpress printers, the process could more than hold its own with competition from other processes for some time.

Additional Suggestions

In addition to the above-mentioned projects, an investigation should be made with a view toward making printing possible on presses constructed with extreme accuracy, and employing harder packing, hard rollers, and possibly an improved inking distribution system.

The offset principle is not necessarily limited to lithography. Actually, offset-letterpress and offset-gravure printing

are being regularly accomplished for special applications. The dry offset plate is in effect a letterpress plate. The possibilities of applying all of the mechanical and process advantages of offset-lithography to letterpress printing are worthy of some study.

A smooth surface on printing paper is apparently highly desirable. A method for measuring this property of paper that is more satisfactory than present methods is needed. Increased studies on the printability of paper should result in information that would make possible decided improvements in letterpress papers.

Finally, a long-range study of letterpress printing fundamentals, particularly the nature and amount of the forces that react when paper is pressed against an inked surface and then removed, should be instituted. A quantitative determination of the kinds, rates, directions, and efficiencies of the reactions involved in the elemental operation of letterpress printing and all of the varieties that influence it, is the logical step toward a better understanding of the limitations and possibilities of the process. Only through such knowledge can the means whereby the maximum quality and speed of production by letterpress methods be visualized and made possible of attainment.

TEMP. AND R. H. IN THE PRESSROOM — THEIR RELATION TO INK AND PAPER

By HERMAN A. SLATER

THERE has been a great deal of discussion in recent years on the desirability of humidity control in pressrooms and the effect of moisture on paper and inks and on the health of employees. Many plants are now working under greatly improved conditions over those that existed a few years ago and most printers are at least aware of the importance of humidity and temperature control particularly for fine color work.

There is a considerable range of change in temperature and humidity in the average pressroom, not only at different seasons of the year, but also from day to day, and even at various hours of the same day. Not only is there this change in conditions but even in plants where there is some attempt to maintain a fairly uniform degree of temperature and humidity we find considerable changes in the reports which they give due to the differences in instruments used for recording as well as vagaries of the party making the reading.

Humidity Testing Instruments

Realizing that all thermometers are not uniformly accurate, there seems to be even a much greater variation in instruments for measuring relative humidity. Probably the most accurate instrument for reading relative humidity is the wet and dry bulb psychrometer consisting of two tubes and a cylindrical wick contained in a water vial and attached to the "wet" bulb. One tube is a regular thermometer while the second tube records the rate at which the surrounding atmosphere is absorbing moisture. A number of these instruments are in use. However, the wick on the wet bulb must be in good condition and a considerable difference in the reading will depend on whether the instrument is read just as it stands or whether, as should be done to obtain the correct reading, it is subject to a gentle fanning to create air circulation. For this reason, a sling pyschrometer will give more correct readings than a stationary instrument, unless the latter is equipped with an aspirating bulb. In tests made before fanning a relative humidity of 45 resulted and after fanning a reading of 36, a difference of 9 per cent. In a second test made under similar conditions the figures were 51 and 40, or a difference of 11 per cent. Note that this difference was not a difference in the relative humidity of the atmosphere at the time but simply a difference of the way in which the reading was made.

Prominent Graphic Arts authorities have accepted air conditioning as the only means to completely control relative humidity in printing plants and plant owners where these installations have been made substantiate their claims. The cost of this equipment is prohibitive in most cases for the small printer, and it is about the only way to de-humidify or control humidity in summer by taking out the moisture. We can resort to the use of various types of humidifiers to keep moisture in the air in the winter, which is when he will have more trouble, anyway, without any attempt at humidity control.

Temperature and Humidity

First let us look at the effect of changes in temperature and humidity on the drying of ink. We are ready to admit at once that temperature plays an important part in the drying and setting of an ink for most of us have sheet heaters attached to some or all of our presses for this purpose. The effect of humidity alone isn't so certain.

We are making no attempt here to completely cover the subject of ink and its relation to paper. We do want, however, to mention the relation moisture in paper has to the proper drying of ink.

There are at least four ways in which ink dries: they are: penetration or absorption, oxidation, polymerization and in volatile inks used in gravure and aniline printing, by evaporation. Ink dries on plain and dull surfaces and uncoated papers largely by absorption, while just the reverse is true in the case of highly coated papers where of necessity

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WALTER HUBER

Research IN THE GRAPHIC ARTS

By WALTER HUBER*

**Walter Huber Company, Technical Service, New York, New York.*

NOT so long ago the publisher of a weekly publication with a circulation running into the millions, authorized the purchase of new equipment after the war. The estimated cost of new printing machinery was in the neighborhood of five million to six million dollars. The Production Manager and the Mechanical Superintendent were agreed that it would be sound practice for their company to have a scientific study made of their requirements in order to determine what equipment they should purchase. The publisher, however, would not authorize an appropriation for this. "Research and development for his company should be supplied by the makers of equipment and supplies" was his credo. Perhaps this is why he is today struggling with antiquated and inadequate methods. Perhaps that is one reason why radio has found newspaper advertising such an easy competitive prey.

The war has brought to the attention of everyone such modern marvels as projectiles aimed at moving objects by radar; the Norden bombsight which performs computations in seconds mechanically that mentally would require minutes or even hours; the cans of fluorescent dye that guide rescuers to fliers downed in the sea; and countless other devices; many of which are too complex for ordinary comprehension. These amazing inventions did not just spring fully developed from the brains of scientists. Each represents many man-hours of planning, study, and experimentation. Each is the product of research, which is perhaps best defined by Funk as "a systematic investigation of some phenomenon by the experimental method".

Apparently it is not appreciated generally that research is as essential to progress in peace as in war. Yet we have only to think for one moment to realize that every big advancement in industry has been brought about by research, and that the United States and all the other leading nations of the world are leaders by virtue of their successful research. All modern developments—telephones, airplanes, plastics, insecticides—are the end-products of scientific study and experimentation without which there could be no modern civilization. Throughout the world in countless laboratories scientists are working today on the products of tomorrow.

Research has been subjected to many interpretations. This is perhaps due to the fact that research can be divided into a number of categories. There is pure scientific research which has as its incentive a search for fundamental knowledge. An example of this is Madam Curie's search for a new element, radium, without any knowledge as to the uses to which it could be put. Ultimately from such pure scientific work may come the foundation for later great industrial developments. Pure research is confined largely to the laboratories of universities, and in rare instances is indulged in by some of the extremely large corporations.

Then there is industrial research which has as its incentive the scientific development of a means of obtaining a certain end. In this type of work adaptation of principles already established is used to as large an extent as possible, and a search for new things is instituted only to bridge gaps where adaptation cannot be made. Research of this type must be followed by development which Redman[1] defines as "The experimental application of research to industry, which is another name for invention".

Budgeting Research

Jackman[2] in his able series of articles on research for the aviation industry, dwells on the amount to be spent for this important activity. In a table he lists the industries which are leaders in research, which range as high as 1.6% of dollar volume of total output for the industry as a whole. The printing industry is conspicuous by its absence. Stevens[3] states that no standard practice has been found for the determination of the amount to be spent by a company on research, but that where research is well established, ratios amounting to from ½ to 3% of gross sales are frequently found. Jackman states that the average annual research budget of twenty-seven associations reporting to the National Research Council of the N.A.M. was $36,960.00 per laboratory, with two associations spending $100,000.00 per year.

The printing and publishing industries hold fifth place in the manufacturing activities of our great nation. The total gross income, according to the U. S. Bureau of the Census, 1939 (the last survey conducted before the war) indicates a gross income as follows:

Newspaper publishing and printing	$898,225,000
Commercial (Job) printing	514,435,609
Lithographing	154,394,787
Book printing	87,686,088
Total	$1,654,741,484

Since the amount spent on research by industries, according to Jackman, ranges up to 1.6%, an allotment by the printing industry of 1% or $16,547,000.00 would be justified. While no figures are available as to the actual amounts being spent, it is safe to assume that the true figure is only a fraction of what is generally considered sound practice—and that at a time when many firms in the industry are enjoying large profits.

The Need for Correlating Research

The printing industry seems to have adopted the premise that all research and development costs should be carried by the individual manufacturers of supplies and equipment for the graphic arts. This could be likened to expecting maximum progress in the automotive industry from engineering by the makers of ignition devices, carbureters, etc. individually, rather than by the producers of the automobiles themselves. Yet we know that America's fine array of cars—the

[1] The Romance of Research, by L. V. Redman and A. V. H. Mory, Directors of Research, Bakelite Corporation; D. Appleton-Century Co., New York, 1933.

[2] A series of six articles on the subject of research by K. R. Jackman, Chief Test Engineer, Consolidated Voltee Corporation, San Diego, California, appearing in the January to June 1945 issues of "Aviation".

[3] A report on Industrial Research as a National Source—introduction by Raymond Stevens, Vice-President, Arthur D. Little, Inc., December, 1940.

envy of the whole world—would have been impossible to achieve with such an unrelated program. There is no denying that research in the Graphic Arts has made some progress in the individual steps that comprise to make the final printed product. As examples we have the Dultgen process used extensively in the making of color gravure etchings, and Claybourn's precision methods as a few of the scientific contributions to printing. But there are gaps that need bridging badly, and they indicate a lack of coordination that can come only from engineering toward a final goal—the finished printed product.

Fortunately, there are some in the field of printing who today are showing courage enough to lead the way, realizing that progress is the life blood of any business and research its heart. They realize that the demands of these modern times require engineering toward a desired goal and that the results of research must form the basis for developing scientific practice to replace ancient craft.

In developing a research program probably the first step is to establish a budget for this activity. Research projects vary in size and therefore in cost. While the results of properly conducted research almost invariably yield a handsome profit, the cost is usually greater than those not acquainted with the subject are apt to anticipate. Generalities may be misleading, but it is probably safe to say that the minimum cost of a research project is in the neighborhood of $25,000.00 from conception to completion. Therefore, it might be considered a sound rule for a company unable to afford this amount out of surplus not to consider individual research, but to confine its activities to those of an association or a group. However, it may be well to point out the danger that trade associations or groups are apt to move slowly and awkwardly unless their objectives are clearly defined, and unless the persons in charge of research are willing to assume responsibility for possible failures. This means of handling research work will frequently require reconciling divergent views in order to avoid confining the work to generalities. A research program can be broken up into its individual component parts for easier financial budgeting.

Research programs may be conducted by research foundations, consulting laboratories, or private laboratories. Each has its reason for existence. Generally speaking, the research foundations such as the Mellon Institute and Battelle Memorial Institute, are at their best on pure research in their given fields and furnish the basic information needed for development. Consulting laboratories are frequently geared to a wide range of technical service. They specialize in development work and usually carry a project through until it is in satisfactory production. Private laboratories are the prerogative of corporations large enough to sustain a sufficiently large research program to warrant the establishment of their own research facilities.

THE DEVELOPMENT OF AN IDEA
or
WHAT EVERY RESEARCH MAN KNOWS

"First," said William James, "a new theory is attacked as absurd; then it is admitted to be true, but obvious and insignificant; finally it is seen to be so important that its adversaries claim that they themselves discovered it." (Cartoon, courtesy of Kane, M.I.T.)—Reprinted by courtesy of *Aviation Magazine* from February 1944 issue.

Patents

"The rock-bottom foundation of all industrial business lies in things invented."[4] Since research leads to invention, this article would hardly be complete without touching on patents. There is not room here to cover thoroughly a subject as large as patents—it is merely possible to mention briefly a few points in passing. The law provides that "any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter or any new and useful improvements thereof . . . and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof . . . may, . . . obtain a patent therefor".[5]

While it is not wise to underestimate the cost of patents, their importance must not be overlooked. Among the costs to consider are the relatively small cost of filing, the bills from the patent attorney for search and preparation, and the time that must be devoted by the in ventor in helping to prepare the patent application. If the invention is worthwhile, not infrequently the inventor also incurs the cost of infringement suits. The alternative is to attempt concealment of unique ideas from competition in order to retain any advantages for one's own benefit. It is generally conceded that the best protection for worthwhile ideas is found in our patent system. If a manufacturer tries to keep his invention a secret, "he is then, naturally taking the chance that another may re-discover the im-

[4] From a brochure issued in 1942 by Invention, Inc., Washington, D. C.

[5] Report of the Committee on Patents, Copyrights and Trade Marks, American Association for the Advancement of Science, by Joseph Rossman, F. G. Cottrell, A. W. Hull and A. F. Woods, January, 1934.

provement, use it freely, and even patent it".[6]

"Fundamentally, a patent is a contract between the government, as the representative of the people, and the inventor. The government, in accordance with constitutional provision and in order to promote the progress of science and the useful arts, obtains from the inventor a disclosure of the invention which disclosure will be turned over to the public and after a given period of years may be used by anyone. In return for this disclosure the government gives to the inventor the right, for a period of seventeen years, to prevent others from utilizing the invention."[7]

Teplow in his article, "Protecting New Inventions"[8] defines invention in arithmetical terms as "Conception + Reduction to practice = Invention." His advice to the inventor is, "Write it down; get it witnessed; reduce it to practice."

If the invention is made in the line of duty by an employee, the invention automatically is the property of the employer, although the patent must be issued in the name of the inventor. Since the employer's right to claim ownership of an invention is a matter that may lead to controversy, it is frequent practice to execute with all employees who are apt to develop improvements for their company, contracts which require them to disclose any such conception promptly and assign full rights to their employer. Since a patent must be taken out in the name of the actual inventor, where several people have collaborated they must jointly apply or there is danger of having the patent subsequently declared invalid.

Conclusion

The printing industry is shouldered with many responsibilities. Its products must keep us informed, must keep us amused, and must help to sell the products of industry in every part of which it has an important place. As industry in general progresses with a constantly increasing tempo, the printing industry cannot afford to fall behind. Progress in the Graphic Arts, as in every other industry, must come through research and development. This activity is so important that it should not be left exclusively to the makers of printing supplies and equipment, but should be encouraged by the printers themselves who stand to reap a larger reward from this than any other investment.

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[6] D. Journeaux, Allis Chalmers Manufacturing Co. Electrical Revue, December, 1940.

[7] H. S. Silver, Allis Chalmers Maufacturing Co., Electrical Revue, September 1936.

[8] Leo Teplow, Allis Chalmers Manufacturing Co., Patent Background for Engineers, 1941.

Impression Line . . .

Applying correct packing on tubular newspaper presses—Except for plate cyl. diam. and plate thickness, figures apply to semi-plate equipment.

By EARL LACURE*

**Field Engineer, The Duplex Printing Press Co., Battle Creek, Mich.*

WE receive many letters for information on the amount of packing to be used, the impression necessary, along with copies of pages for suggestion on improving print and on web difficulties. We believe a few figures giving dimensions of cylinders, etc., that we must start from in building up the impression line will help to answer these questions.

The figures used in this article are based on tubular plates but the same is true for the semi-plate except in the plate cylinder diameter and plate thickness.

In contacts made in field work, we find that only a few pressmen have these figures on hand. Without them they are governed mostly by what the manufacturer recommended and unless they experience operating difficulty they continue to use the same combinations. In many cases these are a carry-over from the old days before the improved methods we now have were in use. The results that where it was necessary a few years ago to use more packing and soft combinations to compensate for variations in stereotype plates and old-style sleeve bearings for cylinders, we now have anti-friction bearings, vacuum casting boxes and scorchers for making plates.

These figures should help to solve some of the problems you may be having:

Impression cylinder ground. . 14.175 in.
Diameter of impression cylinder for 22¾ in. sheet cut. . . 14.500 in.
Packing 0.1625 in. × 2.325 in.
+ 14.175 in. = ... 14.500 in.
(This would be packing necessary for our given diameter but does not include impression)
Plate cylinder ground. . . . . 6.50 in.
Plate thickness 0.375 in. × 2
= 0.750 in. + 6.500 in. = . . 7.250 in. printing diam.
Plate cylinder gear. . . . . 7.200 in.

From these figures we should govern the amount of packing to use, keeping in mind that paper feed is governed by the o.d. of the impression cylinder. The nearer we can pack to 14.500 in. and get the necessary impression the sharper the print will be because we are holding the printing face of the stereotype plate nearer to the surface speed of the paper and impression cylinder.

Stereotyping Plays Major Part

Right here is where stereotyping plays a major part in the amount of packing necessary. We cannot stress this point too strongly because it is so important to good printing.

The more uniform the printing surface of the plate the less impression will be necessary. This is true from two distinct angles. The more uniform a surface the less depth to bring up any low type; the more uniform a printing face the harder the packing can be. It takes less impression against a hard packing to get the pressure necessary to force the ink into the surface of the paper. The less impression necessary, the nearer we can hold our packing thickness for the desired surface speed at the point of impression.

While on the subject of plate thickness and diameter (both being so important to the pressroom) we should discuss a few of the complaints and arguments we get from this angle so that we may better understand the problems of the two departments.

Plates Creeping on Cylinder

A tubular plate should be 0.375 in. thick. Keep in mind this in a "miked" measurement—not just the use of a plate gauge. If the press is properly packed this thickness should be held as closely as possible. The argument has often come up, both from the pressroom and stereotype departments, that if they bore their plates 0.375 in. they are sloppy on the press. In some cases we have found plates 0.385 in. before they fit snugly on the plate cylinder. When these conditions exist you often get the complaint that the plates can't be held from creeping on cylinders regardless of how tight they are locked. The answer is that you have changed the surface speed of the plate and impression cylinders. This is true both from thick plates and overpacking.

As a usual thing, one of two things is the cause of loose-fitting plates. Most often the cause is found in the amount of water used in cooling the plate in the casting box. Cooling too fast causes the plate to open up. If you are having this trouble, cut down on the amount of water, watch the temperature of metal, (check your pyrometer to be sure it is accurate). You will not only hold the plate to a uniform diameter, but in most cases you will clear up honeycomb and frosting of the plate.

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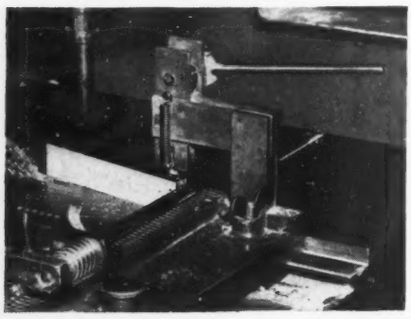
When a Press Does Not Respond to the Pressman's Customary Attention, Make-ready and Adjustment, Call in a Skilled Press Mechanic

EVEN slight flaws in press performance, if they cannot be eliminated by the usual and ordinary corrective measures, may be danger signals of serious trouble ahead. Whenever there's doubt, it's time to call for an expert's attention—From Miehle *Wartime Care For Printing Presses.*

To Saw Stereo Base at Angle

TO serve as a means for clamping and holding stereotype base in a Miller saw-trimmer while being cut at an angle for filling in open spaces in advertising composition, Al Krueger, Cleveland Press Chief Machinist, has devised a simple device. The sawing and trimming of straight work is not interfered with by the presence of the device on the saw which is used for cutting angular fill-in pieces of stereo base.

Upon inspecting the illustration, it will be apparent to the reader how the clamping device functions. The clamping bar or plunger is made from a 2 in. section of discarded Linotype distributor box rail. The plunger, approx. ¼ in. wide, rides between two rails. A Model 26 distributor box cam mounted on a small shaft in the upper part of the vertical plunger housing when rotated by the lever depresses the plunger on the base which is to be sawed. A small coil spring affixed by means of a screw eye in the lower end of the plunger and at the other end in a screw eye in the vertical housing causes the plunger to follow the cam movement upwardly when the lever handle is returned to vertical position.



This clamp holds stereotype base on Miller saw-trimmer for cutting at an angle, when bases are to be cut for filling in advertisements.

The supporting parts all are made from ⅛ in. by 1 in. cold rolled steel.

The vertical bracket consists of two pieces of the cold rolled steel described above. The pieces are approx. 3½ in. long and are set into a recess cut in the right side of the saw gauge. The horizontal arm is 3⅜ in. in length. The vertical plunger housing on the left side is 3 in. long and on the lever side 2¼ in. long. Suitable filler plates are placed between the bracket pieces where necessary.

Minimum width which may be cut immediately under the clamp is 1½ picas.

Angles are obtained by scribing a line of proper angle to one side of the base. The base is then placed on the sliding table against the gauge; the base is shifted until the scribed line is parallel to the right side of the sliding table and then clamped for the cut.

Equipment and Supplies

Bird-White Temperature Exchanger

THE Bird-White Company has announced development of a new Temperature Exchanger based on the principle of heat transfer for air and gas lines. As a by-product, external heating applications and positive purification by centrifugal action are claimed.

This specially designed unit, as an after-cooler, is intended for installation at the compressor discharge point. The Bird-White Temperature Exchanger is supplied with external and internal cooling fins. Multiple action helicoid flighting is featured. The velocity of the element (air or gas) under pressure revolves the helicoid flighting at high speeds forcing the air or gas outward against the internal cooling fins. These internal cooling fins rapidly absorb the heat, or BTU's, generated in compression and dissipate this heat to the outside atmosphere through external cooling fins, thereby lowering the air or gas to room temperature in the length of the unit. By this cooling action, states manufacturer, vaporized moisture and oil suspended in the element condenses and is entrained in the sump, to assure a moisture-free, cooled element at the discharge point.

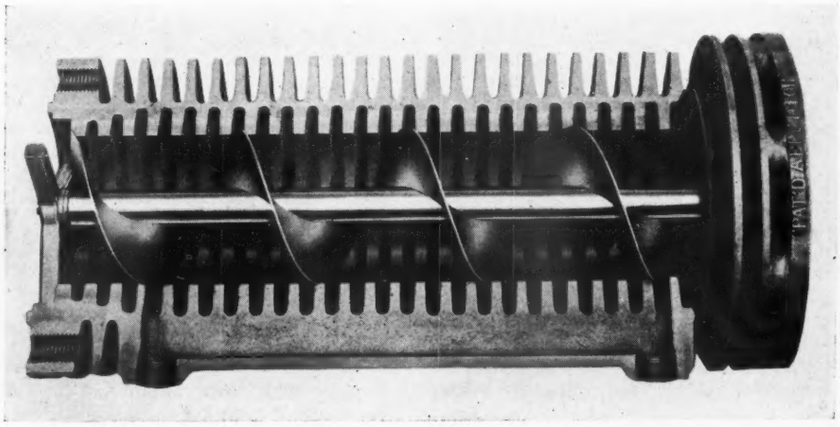
For accommodating large volumes of air or gas, parallel assemblies of the Bird-White Temperature Exchanger may be made. The design permits tandem installation to any required length. Bird-White Temperature Exchangers are available for both flanged and screwed-type assemblies and may also be provided for either manual or automatic draining of the sump.

The Bird-White Company has prepared a bulletin giving full details on the new Temperature Exchanger including engineering drawings and complete specifications with minimum and maximum CFM capacities of the models available. A copy of bulletin No. 12 may be obtained from the company direct, or *Printing Equipment Engineer* will pass along your request.

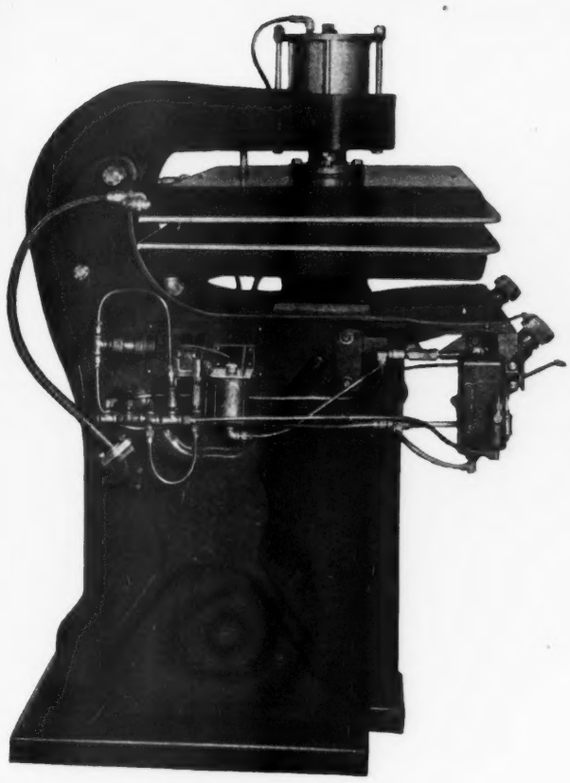
Stereotex Auxiliary Press for Plastic Electrotype Molding

AUXILIARY press equipment for molding operations in connection with the recently developed Printing Plates Research electrotype plastic molding process has been developed by Stereotex Machinery Company.

The new auxiliary equipment consists of two pneumatic platen presses of identical size and construction. One of the presses is intended for heating the form assembly previous to placing the assembly in the regular molding press. The other press is intended for chilling the form assembly following the molding operation. In actual shop practice, it is recommended that the hot auxiliary press be placed at one side of the work table of the regular molding press, and the chilling auxiliary press be placed at the other side of the work table of the molding press. This arrangement provides short lateral movement of the form assembly from one operation to another.



Internal view (cut away) of Bird-White Temperature Exchanger showing external and internal cooling fins and helicoid flighting. This unit is intended for temperature control of air or gas, combined with external heating and purification.



View of Stereotex Auxiliary Press for molding operations by plastic electrotype molding process. Two of the auxiliary presses are required. One press is used as a hot or pre-heating press and the other is used as a chilling press after the plastic sheet has been molded. It is recommended by manufacturer that an auxiliary press be set at either side of the existing wax or lead molding press.

Both the hot and the cold auxiliary presses may be used with existing wax or lead molding presses for producing plastic electrotype molds. The frame of each press is made of a steel stamping and the castings are welded into a rugged one-piece unit. The platens are tested at 275 lbs. hydrostatic pressure. Platen size is 24 in. by 29 in. Diam. of air cylinder is 6 in. Air pressures required are 50-100 lbs. Daylight opening of platens is 1¾ in. Approx. net weight, 900 lbs. Overall width, 29 in.; depth, 34 in.; height, 52½ in.

Circulation of steam in the platen of the hot press, and cold water in the chilling press is serpentine. The steam or hot water connections to the top platen are made of flexible metal hose. Steam pressure required, 30 lbs. Pressure capacity at 80 lbs. air pressure, approx. 2100 lbs.

If steam is not available in the user's plant, Stereotex can furnish 15 k.w. electric circulation heater and equipment. If compressed air is not available, air compressor equipment can be supplied.

Other features of the auxiliary presses are as follows:

The air cylinder is made of seamless brass tubing free of scores and perfectly round. The piston cup material with special felt oil ring is especially suited for air service.

Top platen suspension is spring-compensated, permitting slight four-way movement of the platen for automatic alignment to any uneven thickness of molding blankets.

To reduce heat loss by radiation and to protect the operator from the fatiguing effects of this radiation, the platens of the auxiliary hot press are heavily insulated.

Two-hand control is provided through giant-size "typewriter-touch" buttons to control the closing of the press. Both buttons must be operated simultaneously. Upon premature release of either or both buttons, the press reopens. A release trigger under each control button permits opening the press before expiration of the timing period.

A timing device opens the press at the end of the timing period and automatically resets itself.

A sliding plate with drop handles on either side is furnished to facilitate transfer of forms from press to press.

General Silentbloc Bulletin

THE Mechanical Goods Division of The General Tire & Rubber Company has issued 36 page illustrated bulletin in which are explained the purpose and utility of General Silentbloc flexible rubber bearings, mountings and couplings for machinery and equipment in motion. In the bulletin it is explained that Silentbloc performs three important services in the industrial machine and equipment field, (1) Absorbs vibration, (2) Allows torque action, and (3) Corrects for misalignment. Among the general applications in the printing industry are the following: Packaging machines, compressors, pumps, trubines, conveyors, printing machinery and mixers. In the Graphic Arts field, two illustrations are presented: Applications to Linotype machine and newspaper conveyor. Vibration absorption is thoroughly explained, as are the various types of mountings available. You may obtain a copy of this bulletin by writing the company direct, or *Printing Equipment Engineer* will take care of your request.

Plastic Molding Equipment and Supplies

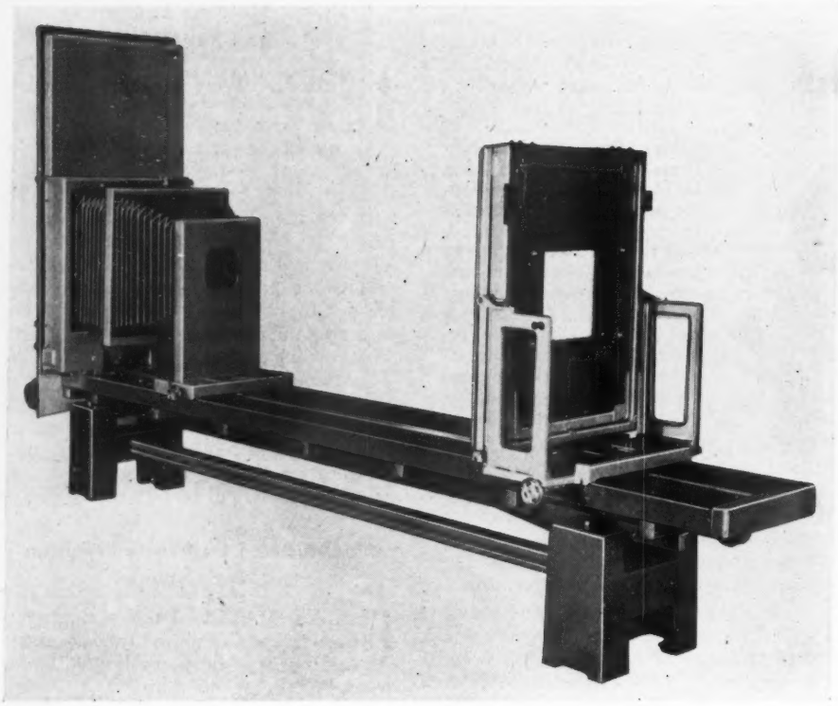
ANNOUNCEMENT has been made that arrangements to supply a specially developed slate-gray Vinylite —for use as the plastic molding medium in electrotyping—have been completed by the Monomelt Company of Minneapolis with the manufacturer, Bakelite Corporation of New York. Eventually, the Vinylite will be supplied in cut sizes plus credits for accumulations of used material. Currently, the firm is in a position to supply the regular 20 in. by 50 in. size.

According to President John W. Thompson, in addition to supplying the Vinylite material for the company's plastic molding service, presses, spray booths, and all other equipment and supplies for electrotyping with the new plastic process, will be offered.

Consolidated Darkroom Precision Color Camera

CONSOLIDATED Photo - Engravers Equipment Company announces development of the Consolidated Darkroom Precision Color Camera. The camera was designed by Max Sussin. Sponsor states it is designed to fill photographic platemaking requirements for commercial and newspaper engravers and rotogravure and offset-lith operators. Manufacturer also states it is both a fast black and white camera and a precision color camera. Negatives can be made from film, dry plate and wet plate. It is equipped to photograph color direct from copy, color transparency and indirect continuous tone work. The camera is made in two sizes—24 in. by 24 in., and 31 in. by 31 in.

Features mentioned by Consolidated are enumerated as follows: (1) Tilting type glass covered copyboard and wooden copyboard combined in one unit; finger-touch control for raising and opening for loading; instant conversion from one type copyboard to another. (2) Precision positive holder equipped with four-way curtain system for blocking out color transparencies and positives. (3) Turret lensboard for two to four lenses to provide range for excessive enlargement and reduction; enlargements up to five times and reductions to ten times can be made in one shot. (4) Positive locks for aluminum lens carriage and copyboard carriage for color work requiring long exposures. (5) A handle operates the screen distance and disengages at extreme screen separation to raise up screen for photographing line work; as the screen goes up, a compensating glass is lowered into position to compensate for screen thickness for register on combination plates. (6) Screen distance indicator scale in darkroom control panel is easy to read and is accurately calibrated to 1/128 in. movement. (7) Hinged vacuum back with tilting mechanism will hold film from 2 in. by 3 in. up to capacity without masks or holding-down devices; a new vacuum system is provided with graduated control valve for film size which gives each section maximum pressure; tilting arrangement on vacuum back



View of Consolidated Photo-Engravers Equipment Company's Darkroom Precision Color Camera. To be furnished in two sizes: 24 in. by 24 in. and 31 in. by 31 in.

permits operator to use it as a contact printer for film or sensitized paper. (8) Hinged etched ground glass with adjustable rails for dry or wet plates. (9) Steel welded, torque-proof base is designed to provide foundation to assure accurate register under difficult conditions. (10) Suspension by 32 heavy-duty springs designed to absorb vibration in plants where the building sways. (11) Center-geared drive carriers for both lensboard and copyboard carriage operated both outside and by controls in darkroom. (12) Stainless steel autofocussing tapes can be equipped for reading in or out of darkroom, or both. (13) Panel in darkroom is equipped with shutter and lens control, automatic timer for lamps, vacuum back switch, flash curtain system and oscillating holder. (14) Traveling lamp carrier operated with copyboard is mounted on a monorail under camera and is fastened to base legs and guided by copyboard carriage so that weight of lamp and carrier is on the base. (15) All moving parts are equipped with airplane precision antifriction bearings, 68 of them being used.

Further information regarding the Consolidated Darkroom Precision Color Camera may be obtained direct from the Consolidated Photo - Engravers' Equipment Co., or *Printing Equipment Engineer* will gladly pass along your request.

Corrosion Resistant Bulletin Available

PHOTO-ENGRAVERS and plant executives will be interested in a new Bulletin H, entitled *Corrosion Resistant Materials and Equipment*. The 16 page illustrated bulletin has been published by U. S. Stoneware. In the bulletin are discussed and described Tygon Plastic Compounds, Tanks and Lining Materials, Flexible Tubing, Gasketing, Tygon Corrosive-Resistant Paint, Tygon Liquids, Chemical Stoneware, Corrosion - Resistant Masonry and other items. If you are interested in receiving a copy of Bulletin H, *Printing Equipment Engineer* will pass along your request promptly.

Commercial All-Cargo Airline

FORMATION of what is claimed to be the first commercial all-cargo airline set up to operate on a non-schedule basis to any airport in the United States was announced in July by Air Cargo Transport Corporation at its main office in the Empire State Building, 350 Fifth Avenue, New York, N. Y.

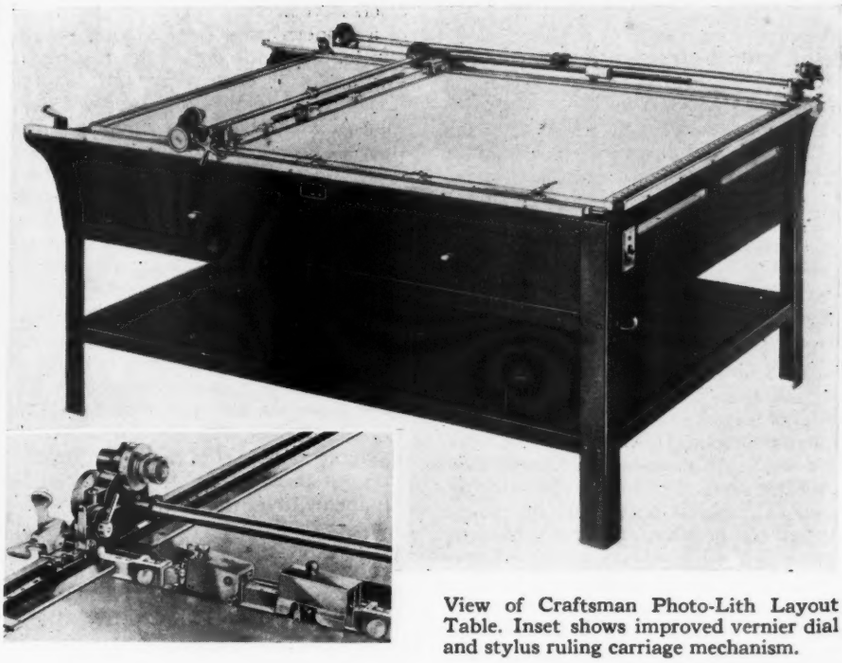
This line is in operation with a fleet of especially designed twin-engined transports and, because cargo will be carried in each instance on a charter basis, can promise delivery on a time schedule as set forth in the agreement between shippers and the company. So far as is known, it is the only American corporation equipped to supply such service at present.

In its long range post-war planning program, Paisley Products, Inc., is enlarging and modernizing its four-story and basement factory at 1770 Canalport Ave., Chicago.

According to Murray Stempel, vice president and general manager, post-war plans include expansion of the packaging adhesive line. Also suppliers of adhesives to the printing, luggage and paper converting trade, the company is in its fourteenth year.

Exterior improvements include new shipping and loading docks and concrete driveway on vacant property, adjoining their plant. All construction will be concrete, brick and steel to match the present fireproof structure. Interior improvements cover an enlarged container filling department, shipping office and locker rooms of glazed tile. A separate loading and unloading dock for empty steel drums is provided. Further improvements have been made in electrical, lighting, heating, process piping and sprinkler system. A railroad siding on the opposite end of the building accommodates several freight cars.

A wall sign recently painted on the enlarged Paisley plant is three stories high and 200 ft. long, and overlooks the Pennsylvania and other railroad lines entering Chicago.



View of Craftsman Photo-Lith Layout Table. Inset shows improved vernier dial and stylus ruling carriage mechanism.

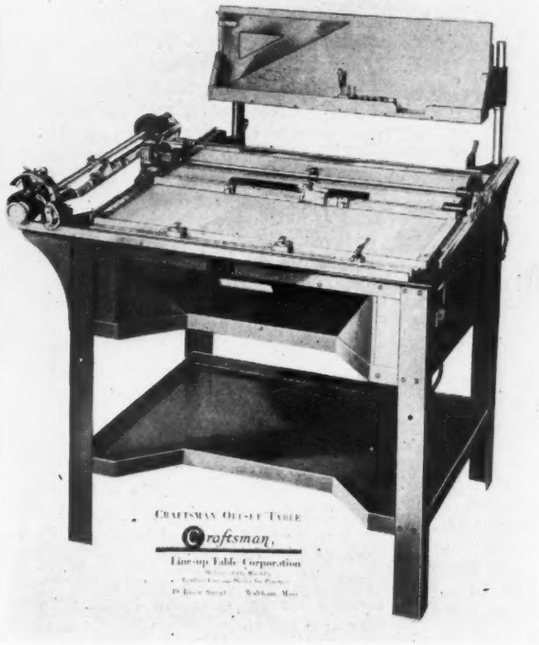
Improved Craftsman Table Equipment

FOR present and postwar use, Craftsman Line-up Table Corporation announces improved facilities and mechanisms in its line of Line-up and Register Tables. These are described briefly as follows:

Line-up and Register Table—This table is designed chiefly for use by the letterpress printer. New methods of operating the geared straightedges and ruling mechanisms have been devised.

Photo-Lith Layout and Register Table—Designed for use both by letterpress and offset-lith printers. The table is now equipped with improved dial verniers for more accurately positioning the straightedges to specific positions on the table surface. It is equipped with pivot-joint mechanisms for ruling on subjects of varying thicknesses such as plates, sketches, etc. Through improved stylus ruling devices, plate, paper and negative may be ruled. Equipped with fluorescent lighting.

Offset Ruling and Register Table—Used chiefly for business systems forms and for other layout work on plate, negative or paper. Supplied with triple automatic spacing mechanism which operates the straightedges by simple lever action. Manufacturer claims that on this table, it is possible to rule 72 lines per inch with lines perfectly spaced and to exact length of line desired. Table equipped with fluorescent illumination.



View of improved Craftsman Offset Ruling and Register Table. Supplied with triple automatic spacing mechanism. Ruling to 72 lines per inch to exact length of line desired, may be executed.

New Pocket Edition of Copy-Fitting Method

THE Linotype Company has issued a pocket edition of its *Copy-Fitting Method*. Copies of the booklet may be had on request from Brooklyn headquarters or the nearest Linotype agency. The new edition of the booklet tells you how many lines of what face will go in which measure.

Charts show lower case alphabet lengths for Linotype type faces in sizes from 5 pt. to 36 pt. (that is, each point size in which matrices are made are given in the charts). The *Characters by Picas* tables lists characters by picas up to 42 picas for various alphabet lengths. Simple instructions are given for handling manuscripts in order to estimate number of lines of type and for estimating matter if it is to be leaded. Instructions for typing copy to fit specified areas are given.

Elco Universal Typemeter

A NEW type of type computer, called *Elco Universal Typemeter*, has been published by Elco Typographic Service. Principally, the typemeter consists of eight charts bound with plastic binding and pertinent information on heavy cardboard, 8½ in. by 11 in.

The Elco Universal Typemeter is based entirely on character count and the point width of the alphabet being used. It will, according to sponsor, easily and accurately compute any type, in any size and in any language using the English alphabet. In other words, it is necessary to know the length in points of the complete lower case alphabet of a given size and style of type. Lines may be figured from 3 picas to 255 picas in width in type setting from 26 characters to the inch, to the largest size it will ever be necessary to use.

There are approximately 8900 computations worked out in the eight charts. Through these computations one can find readily what measure any number of characters will make in any type by referring to the selected number of characters in the copy which is contained in column one of the chart; then by referring horizontally to the width of the alphabet in one of the other columns, the answer to the number of picas which the selected characters will make will be found at the top of the same column.

Another feature of the Typemeter is that one can find how many characters a line of any width will take in any type by following the width (pica measure) of line at the top of the column and following down to the width of alphabet figure in that column. Then by following the figure horizontally the answer to the number of characters will be found in the left-hand or first column.

On one of the instructional pages are shown five charts. In these the alphabets have been divided into tenths of an average character. The first column in these charts is for lines in all-caps and uses the width of the cap alphabet. In the other

(*Continued on Page 60*)

Unit to be built in magazine press dries ink on paper web through steam drum and super-heated air

By GEO. R. BRODIE*

**Fred'k H. Levey Co., New York, N. Y.*

RECENT announcement by the War Production Board that Limitation Order L-226 has been revoked, permitting the resumption of the manufacture of printing equipment, subject to regulations, poses several interesting developments. It brings to light the trend of after-victory expansion of some of the large printing plants. Announcements of additional building, new plants and new presses for printing and publishing companies have been broadcast freely. An analysis of the various projects shows that press manufacturers have their largest backlog of orders in history, a large majority of which are for high-speed multicolor presses.

A review of the situation definitely indicates that a considerable amount of printing is going into high-speed operation with a great increase in the use of color. The largest amount of this volume printing equipment will be rotary web letterpresses using heat-set inks.

The Fred'k H. Levey Co. has been engaged in the manufacture of fast drying ink and drying equipment for web types of presses using such ink. We have manufactured and installed the combination steam drum and high temperature air blast type, the tunnel type utilizing heated air, and the open-flame type using flame compression water-cooled gas burners. We are now offering an improved type of drying equipment in this particular field.

It is hardly necessary to explain the function of ink drying equipment to the present-day printer. Obviously, the purpose of drying equipment in connection with heat-set inks is to bring about the thermal change necessary as rapidly as possible to leave a dry printed film without altering the appearance of the ink or the quality of printing.

High web speeds have only been made possible through development of modern types of drying equipment. These driers have become as much a major part of a modern press as the flying pasters and high-speed folders. After this war is won and we return to civilian economy it is our plan to have our improved drying equipment built into the press rather than to adapt it to an existing design made prior to the advent of heat-set printing. To a large degree this incorporation of driers into press design will remove space and building limitations and permit press and drier design to complement each other.

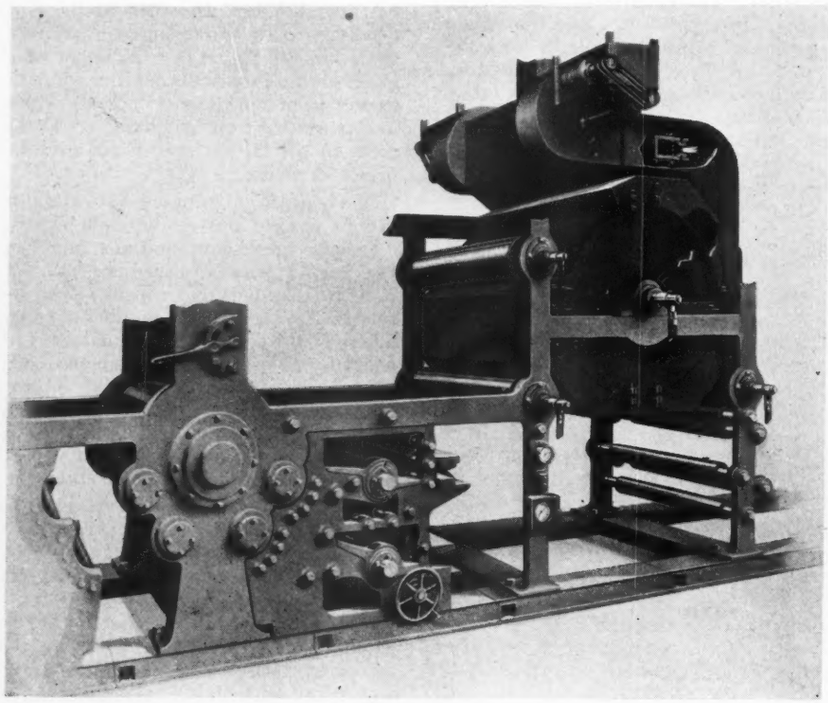
When we review the present-day situation in rotary web printing, we find the open gas flame type of drier is the most common, largely for three reasons: (1) It is compact, making easy installation on existing presses; (2) The initial cost is moderate, and (3) On two-color printing presses, speeds up to 1000 feet can be attained without difficulty.

In developing this new ink-drying unit to be built into new magazine presses we reverted to our original steam drum drying development. This is one of the oldest drying principles in existence. It was used on early gravure presses. It has been used on many heat-set presses but it did not seem to be adapted in its earlier designs to high speeds. Working around this design, we have developed a high-speed drying unit consisting of a double shell-type steam drum operating on anti-friction bearings enclosed within a chamber provided with hot air diffusion and exhaust mechanisms. Upon the web passing over this enclosed steam drum high temperature air is blasted against it. The air used is heated in a simple built in pre-heated unit. The air blast, which is of ample volume, is produced by blowers driven by electric motors.

Operation of the device is simple. To start the unit a pressman pushes a button which starts air circulation and brings up the temperature of the air in the drying chamber to 300 deg. F. This temperature will not harm the web, even though the press is inoperative yet it will furnish sufficient drying capacity for speeds up to 300 ft. per min. thus providing all necessary drying for makeready and any preliminary adjustment prior to bringing the press up to operating speed. When the press is ready for full production operation a control instrument raises the air temperature to suit the speed and the subject matter. If for any reason the press stops, the temperature immediately drops back to 300 deg. F.

The maximum temperature required in the drying chamber is regulated largely according to the type of form being printed. The maximum temperature used is in the neighborhood of 700 deg. F., and this is only used when the form is heavy and the speed is high.

One of the major problems with our present driers on heat-set presses has been the formation of resinous products in the stacks. As a result it has been necessary to clean the ventilation system at intervals. It is our belief that there will be less formation of resinous products with the steam-drum type of drier because of higher exhaust temperature. Less air is exhausted at a higher temperature and the resin-forming ink vapors are



View of recently developed Levey fast-drying ink unit mounted opposite and in line with magazine letterpress printing press unit. The press in this illustration is stripped to show details of the mechanism. The unit is of the steam-drum, hot-air-blast type. Drying speeds of this unit ranging from 1000 ft. to 1200 ft. per min. are claimed. The steam-heated drum is enclosed in a chamber to which is supplied hot-air diffusion and exhaust mechanisms. Temperature of the air in the drying chamber is 300 deg. F. when the press is operated at 300 ft. speed of the web per min. or during standby periods. Maximum temperature in the drying chamber is in neighborhood of 700 deg. when printing from a heavy form at high printing speed.

discharged to atmosphere before they can condense.

Approximately 80% of the heated air which is impinged against the paper web is recirculated in order to accomplish maximum efficiency. In this new ink-drying mechanism in addition to the heat furnished by the gas pre-heated air, we have the problem of supplying steam. The cost of this steam is practically negligible in plants equipped with boilers capable of supplying 100 lbs. of steam.

With the steam type of drier the drum tends to iron out any wrinkles that may form in the web. In some former type of driers the problem of removing fumes from the surface of the traveling web is difficult. This is because a sufficient amount of suction cannot be applied since there is a danger of breaking the web where it is unsupported. Where the web is in tight contact with the steam drum the maximum amount of suction can be used to remove these fumes with the result that good ventilation is obtained and a very small amount is carried out into the pressroom.

Another reason for the design of the steam drum hot air blast type of equipment has been the matter of speeds in drying two-side four-color printing. In our pilot plant operation there is every indication that we will have no difficulty in drying four colors at speeds up to 1000 ft. to 1200 ft. per min. The water-cooled rolls which set the ink film after the solvent has been removed have been placed in a different location than has been standard practice. This particular design of cooling is employed because it operates satisfactorily at high press speeds in four-color perfecting printing.

It is our belief that letterpress printers in the future are going to rely largely upon some form of heat-set ink. This may cover a number of innovations and changes in solvents, but practically any type of present quick-drying ink will dry satisfactorily upon the equipment we have discussed here.

Shown here are eight men and three women employees of the Waverly Press, Baltimore, Md. The eight men have not missed a day since Pearl Harbor and the three women have missed only a day or two of employment. Captain Frederick J. Bell, USN, is presenting the Certificates of Award.

On Sunday, July 1, the Waverly Press held presentation ceremonies to celebrate reception of the Navy Commendation Award for Printers. The presentation ceremonies were attended by more than 300 employees. Commander Frank M. Knox, USNR, made the principal address. Edward M. Passano, vice president in charge of production, received the award on behalf of management.

Waverly Press, Baltimore, Receives Navy Commendation Award for Printers

ON Sunday, July 1, the Waverly Press, Mt. Royal and Guilford Avenues, Baltimore, Md., received the Navy Commendation Award at appropriate ceremonies at the Alcazar. Only recently created, the Navy Commendation Award for Printers was established especially as an award for outstanding performance and service to the United States at war. Waverly Press is one of a limited number of printing establishments in the United States to receive this recognition.

For an organization to be eligible for the award 50% of its total production for six months past must have been war work and 35% of its volume must have been work done directly for the Navy, Coast Guard or Marine Corps.

Presiding at the presentation ceremony which was attended by more than 300 employees, a large group of distinguished Navy personnel, Government representatives, and guests, was Captain Frederick J. Bell., USN Commander of Destroyer Squadron Eight.

Commander Frank M. Knox, UNSR, who made the principal address and presented the commendation award, is Director of Publications for the Navy Department in the Executive Office of the Secretary. The award was received for the Waverly Management by Edward M. Passano, vice president in charge of production, and by a group of eleven employees, representing all employees, eight of whom have not missed any working time since Pearl Harbor. The U. S. Coast Guard Training Station Band furnished music for the occasion.

Founded in the eighteen-nineties the Waverly Press has become a Baltimore institution known around the work as one of the largest producers of scientific and technical books and periodicals.

750th for ANPA

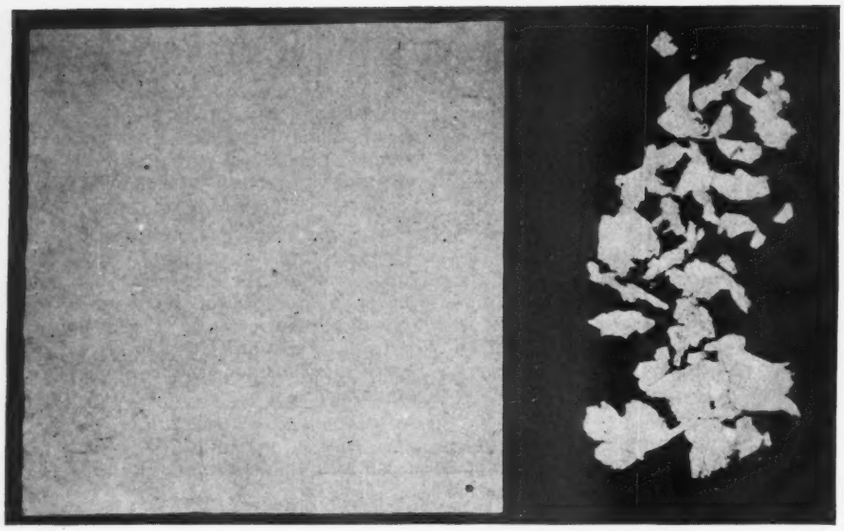
The 750th daily newspaper has been elected to membership in the American Newspaper Publishers Association which carries the total membership to the highest point in the 59 years of ANPA history.

President W. G. Chandler announced recently that the latest new member is the San Juan (Puerto Rico) *El Imparcial*, circulation 42,000. There are three other ANPA members in territory outside continental United States in Hawaii.

The importance of ANPA service to newspapers is shown in the substantial growth of the association's membership, 237 newspapers having joined the ANPA in five years.

The newspapers in the ANPA represent 88% of the total daily newspaper circulation. A majority of the members have circulations under 25,000.

Commander Frank M. Knox, UNSR, presents Navy Commendation Award for Printers to Edward M. Passano, Vice President and Production Manager of Baltimore's Waverly Press.



A B

Fig. 1.—Relative resistance to handling when saturated with water of map papers with (A) and without (B) resin bonding.

Notes on Resin-Bonded, Wet-Strength Papers

By C. G. WEBER*

**Senior Technologist, National Bureau of Standards, Washington, D. C.*

THE use of synthetic resins as binders in papers is a relatively new technical development in papermaking that will prove of great interest to converters and users. The resins are incorporated during the manufacture of paper, to bind the fibers together with a bond insoluble in water and most other liquids. Originally used for the sole purpose of imparting wet strength to specific papers, this resin bonding appears to offer possibilities that have not yet been fully investigated.

The unique property of resin-bonded paper is its ability to withstand rough usage when soaked with water, oil, or other liquids. Papers are produced that can be successfully washed in hot water with soap, or cleaned in gasoline or other solvents. Furthermore, resin bonding does not change to any visible extent such properties of paper as color, opacity, surface characteristics, or printing quality.

Wet-strength treatments of one kind or another have been used to a limited extent in the past. Fromm[1] mentions three, namely; regenerated cellulose, locust bean gum, and glueformaldehyde. However, they have had limited commercial application, whereas expansion in the use of the synthetic resins in paper has been almost phenomenal. Resin bonding has been extremely useful in some of the papers developed for war applications and commercial development that might otherwise have taken years has been accomplished in a short time. Use of the available resins is at present limited largely to special papers for the armed forces. However, the importance of the development is being demonstrated and manufacturers are becoming experienced in applying the resins. Hence, as war requirements are lifted, we may expect widespread use of resin bonding to improve the performance of papers for many civilian uses.

[1] Pulp & Paper Mag. of Canada 46, No. 3: 157 (1945).

Technique of Resin Bonding

High wet strength is obtained by incorporating synthetic resins with the fiber furnish during paper manufacture. The effect is not to waterproof the paper, but to hold the fibers in place with a bond that is not lost when the sheet is saturated with water or other liquids. In addition, the resins improve the dry or normal strength in most respects to an important degree.

Paper is a matted or felted sheeting of vegetable fibers, formed on a screen from a water suspension of the fibers. In their preparation for fabrication into the sheeting, the fibers are treated in water by a mechanical process known as beating. This beating, in addition to otherwise fitting the fibers for uniform felting, causes them to absorb water and form a gelatinous film on the surfaces by a structural change called "hydration". When the paper is dried, the gelatinous layer acts as a cement, bonding the fibers together at all points of contact to give the sheeting strength. This cement remains water-sensitive; consequently when a sheet of ordinary paper is wetted the cement absorbs water and reverts to the gelatinous condition, allowing the fibers to fall apart. In resin bonding, one of the synthetic resins is added to the fiber suspension in a form that attaches itself to the fibers and cements them together as the paper is formed. Subsequent curing of the resin renders it insoluble in water and most other liquids. Apparently the resin supplements or replaces the normal water-sensitive bonds of fiber gel with insoluble and more durable ties.

Effects of Resin Bonding on Paper Properties

The first large-scale application of this new wet-strength technique to commercial papers was in the paper that was

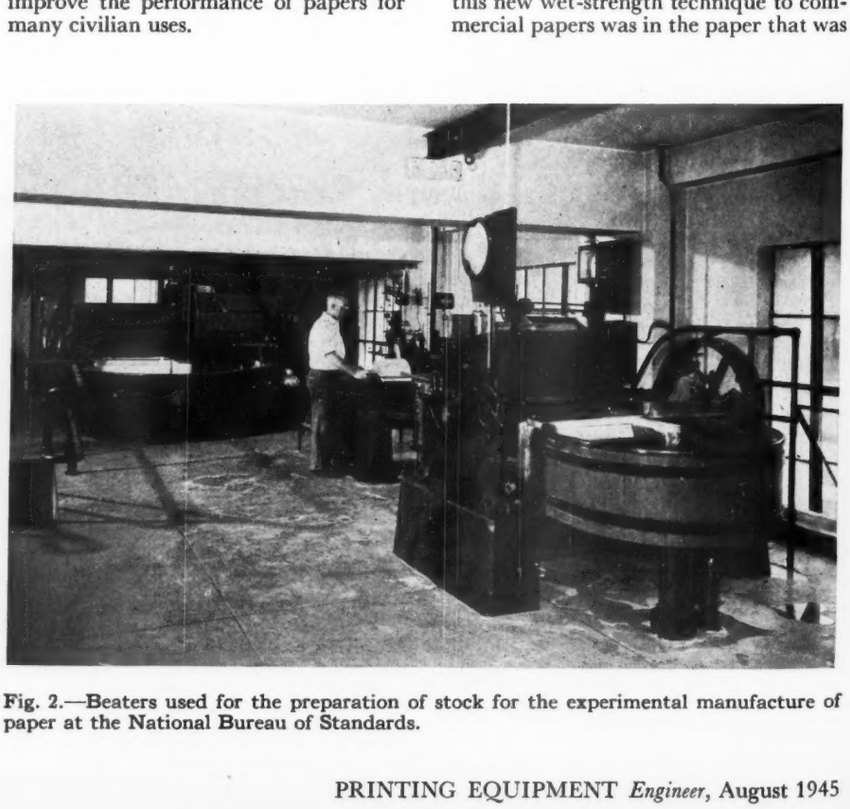


Fig. 2.—Beaters used for the preparation of stock for the experimental manufacture of paper at the National Bureau of Standards.

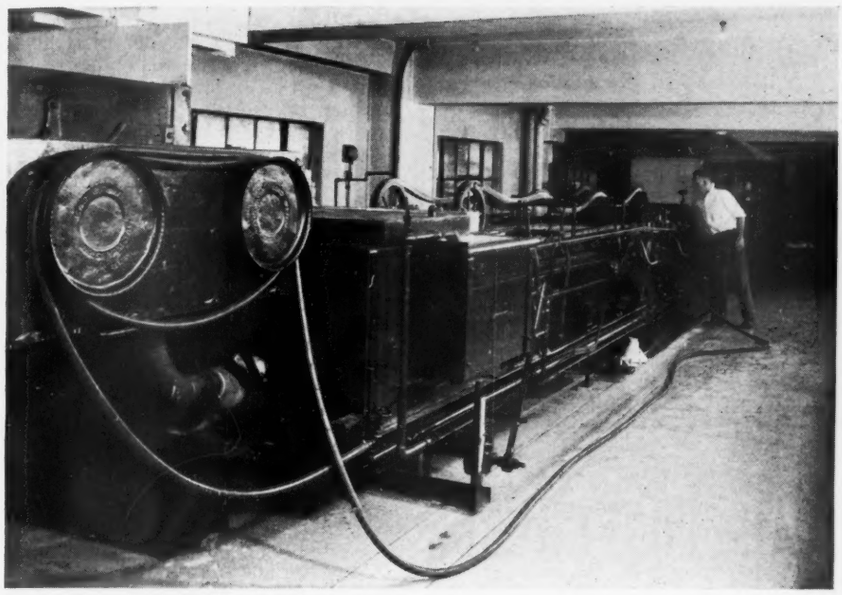


Fig. 3.—Semicommercial-scale papermaking machine on which experimental map papers were made at the National Bureau of Standards.

developed specifically for war maps. The performance of the maps has been remarkable for anything made of paper, and that paper affords a good example of what can be accomplished by resin bonding.

In tests by the Army Engineers, maps printed on the melamine-resin-bonded papers have successfully withstood treatment that would disintegrate ordinary papers. The following is an example of the severe punishment that the maps have survived with satisfactory legibility and strength. Specimen maps were: placed in the mud and driven over by trucks; washed with G.I. soap and steaming hot water; used as floor mats for days; soaked with oil and used to clean rifles; cleaned with gasoline; used for bath mats; used in the rain and carried in pockets wet; laundered like clothes then ironed flat; and even boiled in soapy water. Obviously, conventional types of papers could not withstand such treatments.

The relative resistance to handling when wet of resin-bonded paper and similar paper without resin is illustrated in Fig. 1. The two papers were subjected to exactly the same treatment. They were soaked in distilled water for 24 hours in the same water bath, agitated gently for a few minutes then removed, the excess water removed by squeezing in the hand, and the sheets gently straightened as completely as possible. The resin-bonded paper had good handling qualities while the ordinary paper came apart to such an extent as to lose its sheet characteristics.

The effects of resin bonding on some of the measurable properties of paper are shown in table 1. Here are test values for two papers differing only with respect to content of resin binder. The papers were made on the semi-commercial-scale papermaking machine at the National Bureau of Standards in connection with experimental work on map papers in cooperation with the Army Map Service. They were made as exact duplicates in all respects except that 3 percent of melamine-formaldehyde-resin was added to the stock during the manufacture of the "wet-strength paper", whereas, the "control paper" contained no resin.

Table I.—Effects of Melamine-Formaldehyde Resin on Properties of Map Paper

	Control paper with no resin	Paper with 3 percent of melamine-formaldehyde resin added
Basis weight (25x40:500), lb. .	25	25
Bursting strength, points		
Dry or normal*...	24	54
Wet**...	5	25
Tensile strength, ave both directions; kg/15 mm width		
Dry or normal... .	5.6	10.5
Wet...	0.8	3.5
Tearing strength, ave both directions; grams		
Dry or normal... .	180	113
Wet...	84	251
Folding endurance, dry, MIT double folds		
Machine direction	264	1800
Cross direction... .	67	1420

* Dry or normal refers to paper in equilibrium with the standard conditions of 50 percent relative humidity, 73° F.

**Wet-strength tests made on paper after immersing in water at 73° F for 1 hour.

The efforts of the resin on both wet and dry strength were remarkable. The resin-bonded paper has wet bursting strength equal to, or slightly higher than, the dry bursting strength of the unbonded control paper. The wet-tensile strength of the treated paper is 30 percent of its dry tensile and over 60 percent of the dry tensile of the control sample. The material increase in dry-tensile strength and folding endurance imparted by the resin is of great interest. These papers were for multicolor offset printing and were made with a minimum of mechanical beating of fibers in their preparation for felting into sheet form. The dry strength could have been developed by increased beating. However, the development of maximum strength without the gelatinization of fibers has important advantages, particularly in the manufacture of papers for multicolor offset printing[2].

Gelatinization of the fibers affects adversely the expansivity, distortion, curling, edge waving, and ink receptivity. Resin bonding may prove preferable to gel bonding in many printing papers of the future.

Current Applications of Wet-Strength Resins

On a tonnage basis, the war-map paper has been by far the most important single item of resin-bonded paper manufactured. Until recently, more than ⅔ of all of the melamine-formaldehyde-resin used in paper went into that one type. However, a relatively small amount of resin has been available for other essential papers, and resin bonding for wet strength is already employed with important benefits in the following types of papers:

Absorbent papers, toweling, lens wiping and machinery wiping tissues, and facial tissues.

Bag and sack papers, particularly for potatoes and other vegetables packed wet.

Saturating papers for impregnation with aqueous solutions or emulsions.

Photographic papers including blue and brown print and all others subject to wet processing.

Poster Paper and other papers used for outdoor advertising.

Twisting paper for yarns, twines, and cordage.

Wrappings, glassine, greaseproof, meat, vegetable, and frozen food wrappers.

Other specialties are shipping tags, field note books, currency paper, garbage containers, diaper backing, handkerchiefs. Bed sheets and pillow cases are in the offing as are many other special papers.

[3] Weber, C. G., Relation of Paper Properties to Register in Offset Lithography, Bur. Standards J. Research 13, 609 (1934) RP 730.

Awarded Second Star

In recognition of the continuous and outstanding production of war materials for the Government, the Navy Board for Production Awards has granted the Rutherford Machinery Company, Division of General Printing Ink Corporation, a second renewal of the Army-Navy "E" Award.

The employees of Rutherford have pledged their full cooperation and support necessary for final victory.

Meeting of Pacific Coast Newspaper Mechanical Conference — Shown here (left to right) are: President Ira E. Stuck; Vice President Fred J. Moyer; Secretary-Treasurer Edward L. Conley, and Louis F. Otto, who is Oregon Unit Chairman; Mr. Otto is photo-engraving superintendent of the Portland *Oregon Journal*.

WARTIME MECHANICAL CONFERENCE

held in three separate group meetings by Pacific newspaper mechanical executives—San Francisco, Portland and Seattle unit get-togethers successfully conducted.

BY STAFF WRITER

IN deference to the request of the War Mobilization Director, the Pacific Newspaper Mechanical Conference which was to have been held in San Francisco last May, was postponed. However, because of organizational problems in the vast expanse of the western coastwise states and the states immediately adjacent, it was felt by the directors that small regional group meetings of some kind could be substituted and still remain within the restrictions imposed by ODT that no meetings in excess of 50 persons be held during the war.

Accordingly, it was planned by President Ira E. Stuck and officers of the Pacific Newspaper Mechanical Conference that three unit meetings would be held as follows: The Oregon unit meeting was held in Portland on May 13; the Washington unit meeting was held in Seattle on May 15, and the Northern California unit meeting was held in San Francisco on June 25.

The three meetings were dominated by fraternalism and organization spirit. The "get-together" spirit was pronounced. What the meetings lacked in volume of attendance was more than made up in enthusiasm. The meetings have been called "production problem clinics," because they afforded every executive present to air his pet gripe and more than likely obtain the answer to his problem.

President Ira E. Stuck and Secretary-Treasurer Edward L. Conley of San Francisco, and Vice President Fred J. Moyer of Los Angeles, officers of the Pacific Newspaper Mechanical Conference, attended the unit meetings in Portland and Seattle.

Oregon Unit Meeting

The Portland, Ore., meeting held at the Benson Hotel, was opened by Chairman Louis F. Otto, engraving superintendent of the Portland (Ore.) *Journal*.

President Stuck was introduced by Chairman Otto. Mr. Stuck explained the aims and purposes of the Portland Unit meeting. He then introduced Vice President Fred Moyer and Secretary-Treasurer Edward Conley, who made short talks. Business Manager M. J. Frey of the *Oregonian* and Assistant Business Manager Gordon Law were also introduced.

The technical discussion was initiated by consideration of condition in which engraving copy is sent into the plant. The discussion was participated in freely by those in attendance. Chairman Otto appointed a committee to confer with advertising agencies and department store advertising departments on the subject of cut sizes. It is an objective of the committee to request advertisers to have artists mark drawings to be sent to engravers in specific sizes, preferably in picas, and not to follow the established custom of marking drawings for reduction (such as one-half, one-third, or one-fifth reduction).

Further discussion centered around press and stereotype production problems.

Just before the closing of the unit meeting, President Stuck suggested that a permanent committee be appointed to handle the affairs of the Oregon unit and that occasional meetings of the committee be called to serve as a "hold-together" until the Pacific Conference is permitted to function again. The "hold-together" committee consists of Chairman Louis Otto, engraving superintendent of the Portland *Journal*; Ray White, ad foreman, also of the *Journal*; Harry Hale, production manager, and Frank Dewey, stereotype foreman, both of the *Oregonian*; Tom Brown, pressroom foreman of the *Shopping News*, and H. H. Townes of Federated Metals, representing the supply men.

Washington Unit Meeting

Lester Grebassa, pressroom superintendent of the Seattle (Wash.) *Times*, served as chairman of the Washington unit meeting, held at the Washington Athletic Club on May 15 in Seattle. Approximately 50 mechanical executives and a few manufacturer and supplier representatives attended the meeting. In organizing the Washington territory, Harry Porte, San Francisco Linotype manager, had previously done some missionary work and acted as advance agent. As the result of this trip, President Ira Stuck of the Pacific Newspaper Mechanical Conference, appointed Lester F. Crebassa as chairman of the Washington unit meeting. Mr. Crebassa expressed his appreciation to Mervyn Lipman, manager of the California Ink Co. for his able assistance in making arrangements for the meeting.

(*Continued on Page 62*)

Washington Unit Meeting of Pacific Newspaper Mechanical Conference — At left is Mervyn Lipman, manager of California Ink Co.; at right, Lester Crebassa, Washington Unit Chairman; Mr. Crebassa is pressroom superintendent of the Seattle (Wash.) *Times*

Craftsmen hold small but successful business meeting in Columbus, Ohio — Trip through Battelle Memorial Institute distinct highlight of gathering

By HERMAN A. SLATER

THE twenty-sixth annual meeting of the International Association of Printing House Craftsmen was held at the Deshler-Wallick Hotel, Columbus, Ohio, on August 6 and 7. Because of ODT's ruling with respect to convention attendance, the Columbus meeting was limited to one Craftsman delegate from each club, residents of the immediate Columbus area and the International Board of Governors.

First Vice President H. G. (Guy) Bradley who is production manager of the Eli Lilly and Co. printing department in Indianapolis, was advanced to the position of president.

Gradie Oakes, president and general manager of Process Color Plate Co., Chicago, was selected for the position of third vice president.

Edward T. Samuel, superintendent of A. S. Gilman, Inc., Cleveland commercial printers, was chosen to serve as treasurer. He succeeds Charles Gainer of Chicago who has served as international treasurer for the past five years.

Installation of Officers

At the annual dinner meeting held Tuesday night, August 7, the newly elected International Board of Governors was installed by J. Homer Winkler, Assistant Supervisor, Graphic Arts Research Dept., Battelle Memorial Institute, Columbus. After the installation ceremonies had been concluded, President H. Guy Bradley announced the selection of several appointive officers. These are: Chairman of the Educational Commission, J. Homer Winkler, Assistant Supervisor, Graphic Arts Research Dept., Battelle Memorial Institute, Columbus, O.; Chairman of the Publications Commission, Michael Ivers, Chicago; Chairman of the Research Commission, Herman A. Slater, New Product Research Dept., American Type Founders, Elizabeth, N. J. (Mr. Slater succeeds himself); Public Relations, F. L. Ferris, Promotion Dept., Capper Publications, Topeka, Kas. (Mr. Ferris succeeds himself, having been first appointed by then President Walter Schultz). President Bradley created a new appointive office in the person of DeWitt Patterson to the office of Foreign Representative. Mr. Patterson is a former International officer. The office of Representative-at-Large was bestowed upon John L. Reay, vice president of the Braden-Sutphin Ink Co., a member of the Columbus Craftsmen's club.

Highlight of the Meeting

The distinct highlight of the 26th Annual Meeting of the International Association of Printing House Craftsmen in Columbus was the visit paid to Battelle Memorial Institute on Monday, August 6. An invitation was extended by Battelle through Columbus Craftsmen to visit this outstanding research establishment under the guidance of its personnel. Many Craftsmen have never had an opportunity of learning much about scientific research procedures. The tour through this research plant whose activities reached a $2½ million volume in 1944, was highly illuminating to the serious minded printing executives.

About 80 people, consisting of the officers, delegates and a number of local members of the Columbus Craftsmen's Club assembled in the Battelle auditorium at noon. A brief speaking program took place in the auditorium, during which Dr. O. E. Harder, Assistant Director of the Institute, welcomed the visitors. The work of the Graphic Arts Research Division was outlined by Dr. R. N. Schaffert. A number of supervisors of other technical divisions of Battelle and all of the research engineers of the Graphic Arts Research Division were introduced to the visiting group. R. R. Adams described the organization and method of operation of Battelle.

After the conclusion of the speaking program, a luncheon was served in the cafeteria, following which the group was escorted on a tour of the Institute's laboratories.

A few of the more interesting sights were the ceramic furnace laboratory, the constant temperature room, spectrographic laboratory, fuels laboratory, electrochemistry laboratory, metallographic and photographic departments, welding department, creep-test room, electron microscope, enemy materiel laboratory, foundry equipment, glass blowing, and the Graphic Arts Laboratory. The tour required approximately two hours.

Interest was heightened in the importance of scientific research among visiting Craftsmen when it was announced in the Columbus newspapers that Battelle had played an important part in the development of the atomic bomb.

In the Graphic Arts Research Division of Battelle, a number of research projects have been under way for some time or will be in full swing within a short time.

Club Management Dinner

The Club Management Dinner on Monday evening, August 6, brought out many suggestions from delegates. Ideas were passed along freely and with enthusiasm with respect to ways and means for providing informational meetings and for sustaining member interest in the club.

Mannie Hubbell, who recently became planning and analysis manager for Chicago's Neely Printing Co., and chairman of the International Educational Commission, was chairman of the Club Management Clinic. His selections for discussion leaders were as follows: International First Vice President H. Guy Bradley, on Educational Programs; Second Vice President W. H. Griffin on Club Management; Third Vice President A. Gordon Ruiter on Membership.

During the course of his opening remarks, Chairman Hubbell explained in detail the functions of the International Educational Commission. He exhibited an excellently prepared easel stand containing many charts related to printing ink. The charts were prepared by Stuart Braznell of the St. Louis Club. The Educational Commission, at all times, is anxious to be of assistance to local clubs in preparing programs.

Membership Maintenance

International Third Vice President A. Gordon Ruiter discussed in detail some of the means that may be used in holding attendance of members at club meetings. His suggestions seemed to form an effective means for inducing members to attend regular monthly meetings. One of these is that a letter be sent each month to members who have not attended in which it should be stated they were missed from the previous meeting. This letter is sent out by the Boston Club in addition to the regular club meeting notification to all members and the monthly bulletin.

Jack Hagen, past president of the Chicago Club, asserted that the first problem to be overcome in getting out new members is in the appointment of an effective membership chairman. He suggested that regular attendance of members is the important thing. The Chicago Club is giving attention to membership attendance rather than merely to increase its membership.

Russell Hogan, President of the New York Club, discussed ways and means used by the New York Club. He stressed that the holding of member interest after their initiation is very important to the New York Club. It is the practice in the New York Club to initiate new members in classes of 25 or 30 at two-month intervals. Each class is named after a past president of the club.

Norman Welch of the Toronto Club, discussed the collective efforts of the Board of Governors in securing new members. Among the means used to secure interest in the club is to hold a golf tournament during the summer and to have a ladies' night in the fall. Meetings are started on scheduled time and are closed on time. Best speakers, of course, are always provided. Clinics on varying

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Page of Pictures Taken at Craftsman's Columbus Meet

1—Sidney N. Howe, President of the Columbus Craftsman's Club, presents a mounted page taken from one of Ben Franklin's books to Immediate Past President Walter F. Schultz.

2—Fred C. Baillie of the Ottawa (Can.) Craftsman's Club and Ralph W. Robbins, Plant Engineer, The Maqua Co., Schenectady.

3—Russell J. Hogan, Plant Manager of the Blanchard Press, Inc., New York, New York and Byron C. Culver, Head of the Printing Department, Rochester Institute of Technology, Rochester, New York.

4—Andrew B. Fries, Foreman, Western Printing & Litho Co., Racine, Wis.; Jack Danbury, General Superintendent, Superior Printing Co., Atlanta, Ga.; Clarence Ritter, Pressroom Superintendent, Printing Div., Plough Chemical Co., Memphis, Tenn.

5—Energetic head of Craftsmen's Public Relations Commission, F. L. (Les) Ferris, of Capper Publications, Topeka, Kas.

6—Members of International Official Family—Herman A. Slater, Chairman of the Research Commission, is with New Products Development Dept., American Type Founders, Elizabeth, N. J.; Representative-at-Large John L. Reay is Vice President of Braden-Sutphin Ink Co., and member of the Columbus Club; J. Homer Winkler is President Bradley's appointee as head of the Educational Commission; Mr. Winkler is Assistant Supervisor of the Graphic Arts Research Div. of Battelle Memorial Institute, Columbus, Ohio.

7—Immediate Past President Walter F. Schultz has chat immediately following adjournment of one of the sessions with George L. Best, Best's Printing Co., Iron Mountain, Mich.

8—This is a general view taken in the Graphic Arts Research Division Laboratory of Battelle Memorial Institute, Columbus, Ohio, during the 26th annual business meeting of the International Craftsmen's Association. This new division is in process of being added to in the way of equipment. Plans have been completed for quarters in a new building to be erected in the near future. Projects being worked upon at the present time are for Printing Plates Research, Inc., and for Photo-Engravers' Research, Inc., and a number of others.

9—Norman Welch of Welch & Quest, Ltd., Printers, Toronto, and Ed Aitken, Superintendent, The Bryant Press, Ltd., Toronto.

10—Harold Crankshaw, Instructor, Central High School, Washington, D. C.; Alex Alberg, Manager of the Printing Dept., Unity School of Christianity, Kansas City, Mo.; Andrew George, Chief Chemist, Schmidt Lithograph Co., San Francisco, Calif.

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segments of the Graphic Arts by club members are held. Brief sing-song programs or some type of musical entertainment is provided. Mr. Welch stated that an average of 175 members attend the club meetings. Membership in the Montreal Club is approximately 340.

Sidney N. Howe, president of the Columbus (O.) Club, stressed the importance of creating interest among club members by putting the members to work. Putting them to work has the effect of making members feel that they really are a part of the club. On certain occasions, invitations are mailed to printer groups, particularly when an excellent speaker has been secured.

Club Management Section

Chairman Hubbell then called upon Third International Vice President Griffin to lead the discussion on Club Management. Mr. Griffin feels that members must be sold each month on good educational features. A Craftsman's Club is in no position to compete with cafes, cabarets or any type of night club. In particular, such entertainment as is afforded at club meetings must take much less time and be subordinated to the educational feature.

The first speaker in this panel was Fred C. Baillie of the Ottawa (Can.) Craftsmen's club. Meetings are called on time with perhaps brief piano playing or sing-song for 10 or 15 minutes. After the speaker has concluded his address, a question and answer period takes place during which free discussion is encouraged.

Wallace Ostroot, president of the Minneapolis Club, stated that programs are always conducted along educational lines with perhaps a brief musical program participated in by the members. Twelve meetings are held each year instead of the usual 9 or 10 meetings. To create interest locally, four special meetings are held each year. These are: Officer installation, ladies' night, Christmas party and past presidents' show.

Andrew George, of the San Francisco Club, who is Chief Chemist for the Schmidt Lithograph Co., stated that after the educational program at each club meeting, a singer, dancer or piano player presents a brief entertainment program.

Said Arthur Metcalfe of the Montreal Club: "We have learned that entertainment does not mean much to Craftsmen. They come to the meetings expecting a good speaker in order to learn something about their trade."

Homer L. Greene, of the Dallas (Tex.) Club mentioned that nine club meetings are held each year. In January, the club holds a Ben Franklin celebration with which is incorporated the annual ladies' night and ball.

Educational Programs

First Vice President H. Guy Bradley was called upon by Chairman Hubbell to conduct the Educational Program section of the clinic meeting. One remark made by him was as follows: "Cultivation of the art of getting along with people is good promotion for Craftsmen."

Neal Wendling, President of the Dayton (O.) Club spoke of the value of plant visitations, particularly among the larger plants, at which luncheons have been served.

Ed Samuel, Secretary of the Cleveland Club, reported "We make the most of our outstanding speakers by trying to put them in a 'good spot'—that is, during the months when club attendance is likely to be at its best." The stated club meetings are strictly technical with the exception of the June stag outing and the ladies' Christmas party.

Elmer Bredensteiner of the Indianapolis (Ind.) club, related that various shops in that city are invited to send displays on photo-engraving, electrotyping, silk screen process, and so on. Usually, 10 minutes time is permitted the speaker for discussion of his company's display.

August J. Bruder of the Cincinnati Club explained at some length some of the methods used by the Cincinnati Club officers in keeping up member interest. On one occasion, a card was mailed to each member asking him to state with what particular subject he is best acquainted; his hobby; what music he likes best; and to suggest several subjects that would be of interest to the greatest number of members. Many new ideas for club meetings, as well as local talent club speakers were uncovered when cards were returned to the club.

Harry C. Susemihl of the Philadelphia Club feels that each club faces a different problem with respect to its technical and educational programs. With respect to programs suggested by the International Educational Commission, he doesn't believe the Commission would be able to set up a program suitable to all clubs. However, from meetings such as this Club Management Clinic, educational committees of local clubs can develop programs by using the ideas presented.

Printing's Mechanical-Production Executives

are invited by the editor of *Printing Equipment Engineer* to submit descriptions of mechanical or production helps which have been devised in their plants. Perhaps publication of these things will help other executives with their mechanical and production problems.

The Meaning of Craftsmanship to Plant Executives

Does Membership in a Craftsmen's Club Make a Better Mechanical Executive?

By A. J. BAIRD

Manager, Baird-Ward Printing Co., Nashville, Tenn.

MY answer to this question is a positive "yes"—provided the local Craftsmen's Club is operated in accordance with the ideals and principles advocated by the National Organization,

Because:

(1) It broadens the member's perspective of things pertaining to his job. Better plant executives, in my opinion, are those who are not narrow in their points of view.

(2) It increases his technical knowledge of his job through discussions of plant problems and their solutions with other good Craftsmen. Better plant executives know they can learn a lot from the other fellow, if they ask *some* questions and listen *plenty*.

(3) It gives the member a feeling of freedom to call on a fellow Craftsman for counsel and advice in overcoming some particular production difficulty with which he's "stuck". Two heads oftimes are better than one in these cases, even if one *is* called in from a competitor's plant. I've seen our plant executives (and we've got some pretty good ones) both give and receive assistance in these instances, but they wouldn't have done either so willingly if they hadn't learned about Sharing Their Knowledge through Craftsmen's Club membership.

(4) It affords him the opportunity to get up on his feet and express himself, in the presence of a group. This practice in regularly held Craftsmen's meetings tends to overcome the handicap that many otherwise good plant executives have, or *think* they have, when they tell you they know what they think, but just can't say it satisfactorily when they talk to a crowd.

These are just a few of the many reasons why I believe membership in the Craftsmen's Club does help to make a better plant executive, but in closing this "300 word assignment", I'd like to make this statement: The Craftsmen's Club of Nashville, in my opinion, has been a splendid influence, not only in helping to make better plant executives, but also in helping to make a more cooperative and better-understanding sort of relationship between employees and employers in the printing industry of this city.

Why Management Likes to Have its Production Executive Personnel Identified with a Craftsmen's Club

By HAROLD E. THOMPSON

General Manager, A. S. Gilman, Inc., Cleveland, Ohio.

THE Cleveland Club of Printing House Craftsmen, as an affiliate of the International Craftsmen Association, has done an outstanding job for the printing industry. The Share Your Knowledge creed has without doubt brought greater vision and enlarged the education of its members to a point where the whole industry has benefitted.

As general manager of A. S. Gilman, Inc., I have urged our department heads

HAROLD E. THOMPSON

Discusses Craftsmanship from Management viewpoint.

to join Craftsmen's Club, and by all means to attend meetings regularly. I want our department heads to keep up with all the latest research and developments affecting the industry. By so doing they are bound to become more valuable as individuals and certainly more valuable to the company.

Nothing pleases me more than to have our department heads come in with an idea for better layout, better typography, better makeup or lockup methods, increasing the production or the quality in presswork, or some new wrinkle concerning bindery operations. I want them to be pressing me to keep up with the times. I like to have them keep me informed as to what is happening in all branches of the industry, whether it affects our particular plant or not.

While we do not manufacture printing plates, we use them, and for that reason I feel that our men should know what is happening in the engraving field. We do not produce gravure printing either, but it is certainly beneficial to our men to know what gravure printing is, how it is done, and the scope of its operation and use. The same goes for paper, ink, rollers, type metal and all the other component parts of the industry.

As to the benefits to the member as an individual, a casual check of the plants in Cleveland will readily prove that Craftsmen members are, as a whole, better craftsmen, more sure of themselves and their ability, which in turn is bound to bring greater rewards.

Motor-Power of Personal Progress Comes Through Association of People of Like Interests

By OTIS H. JOHNSON

Secretary-Treasurer, Rufus H. Darby Printing Co., Washington, D. C.

THE vigor and force with which business advances is always in direct proportion to personal development and growth. The motor-power of personal progress comes through association with people who have like interests. The many local Craftsmen's Clubs throughout the United States afford the meeting ground where men with like interests

OTIS H. JOHNSON

Shows necessity of taking advantage of opportunities afforded to mechanical executives in order to prepare for larger responsibilities.

have opportunity to meet in familiar environment and to exchange personal experiences on a common and understanding basis.

Aside from the many excellent technical subjects studied at these meetings—which a member can adopt and use in his work-a-day activity—the association with fellow craftsmen opens the vistas of new fields and visions of unexplored opportunities. The Craftsman then enters his work with enthusiasm and a broader understanding of the industry of which he is a part.

The Craftsman rises to a position of executive responsibility through application of the details of his trade. He not only understands his work—but also likes his fellow men. In this, he possesses a well-balanced knowledge of men and methods, he is honest, tolerant and capable of administering justice without favoritism. These qualities, together with his mechanical know-how, place him in a position of leadership and obtain for him the respect of the men with whom he is working.

As the good Craftsman has applied himself from four to six years in apprenticeship training, so also will he apply himself in a very diligent manner to broadening and extending his experience in the field of management. The Craftsmen Clubs of America afford rich opportunities for the alert Craftsman who wants to prepare himself for larger responsibilities.

"As Long As We Remain Teachable—"

By CARL E. DUNNAGAN

President, Inland Press, Chicago, Ill., and President, the Graphic Arts Association of Illinois, Inc.

AS head of a printing concern that has its share of production problems, I realize that the exchange of ideas as practiced by the Craftsmen's movement is good for all firms whose production executives are active in it. It is a give and take proposition in that our men are at the giving end of sharing knowledge sometimes and at other times they are at the receiving end of the sharing. I have noticed that they don't wait for the Craftsmen's meetings and conferences to share their knowledge, but they frequently phone other craftsmen to find out how they are handling a particular problem, and just as frequently, or more so, they are called to the phone by other craftsmen who want to get pointers about their problems.

As I figure the sharing knowledge idea, it does not matter whether executives in our organization are giving technical information or getting it, they benefit from the sharing process. They become bigger men by the process of giving information to others, and when they are at the receiving end they realize that they do not know it all, which is a good thing for any of us to realize. As long as we remain teachable we are going to make progress. I need not say that when a man has reached the stage where he thinks he has learned all there is to know, he is dead from his shoulders up, no matter how much physical energy he can register.

All of the executives of our establishment are in favor of trade associations:

CARL E. DUNNAGAN

Sums up Craftsmanship by simple statement: "It's a give-and-take proposition."

the employers' group for the management, and the Craftsmen's club for the production executives. More power to them.

Craftsmanship Advances Scientific Procedures and Skills

BY EDWIN LENNOX

President, American Colortype Company, Chicago, Ill.

I HAVE not had many contacts with the Craftsmen's Movement personally, but I have observed that our alert production executives are enthusiastic about its educational program and attend meetings and conferences. From what I have been told, practically all of our men who are eligible to become members of the Chicago Club are active in promoting its program.

With such evidence of general participation on the part of the advanced technical men in the industry, there must be something very fine in the Craftsmen's objectives and operations which the management of every establishment in the graphic arts should be, and doubtless is, willing to encourage. The very idea conveyed in its motto, "Share Your Knowledge" is inspiring. It is typical of the American spirit of sharing knowledge that has enabled technical groups in other industries, also in professional circles, to advance our scientific procedures and skills.

I am glad of this opportunity to say that it is a good thing for our industry to

EDWIN LENNOX

"There must be something very fine in the Craftsmen's operations and objectives."

have the Printing House Craftsmen's movement function as it does and that it is so successful. I am also gratified that the production executives of our several companies are participating in its educational activities, thus benefiting our own operations.

What My Company Gets Out of Mechanical Executive Membership in the Craftsmen's Club

BY L. E. OSWALD

Plant Manager, The E. F. Schmidt Co., Milwaukee, Wis.

A MECHANICAL executive in a printing plant—plant manager, shop superintendent, foreman, or production manager—is usually a specialist in only one phase of production. He has risen from the ranks of his craft to his

LESTER E. OSWALD

Shows how Craftsmanship benefits mechanical executives in all phases of printing processes, particularly if he has risen from the ranks as a specialist in one branch of the business.

managerial position, and is then brought directly into contact with all the other operating departments. His interests must necessarily include not only his own special field but also all the processes used to produce the finished piece of printed material.

Through his Craftsman membership he develops his working knowledge of all Graphic Arts crafts. He is informed more rapidly of new methods and materials and discusses them with his fellow Craftsmen. His personal contact with executives from other plants enables him to compare their production practices with those of his plant. When the mechanical executive faces a production problem, he knows where the answer will be found: A Craftsmen acquaintanceship will be sure to have the solution—will gladly share his knowledge.

A Craftsman soon realizes that in the membership of his Craftsmen's club he has a source of information on printing practices and problems such as could be contained in no library. The results of practical experience are his for the asking, because Craftsmen gather on the common ground of friendship. They are not handicapped by the competitive atmosphere of management.

To a mechanical executive, the activities of his Craftsmen's club are like a continuing post-graduate course in printing information. This has been my experience, and explains the reason for the high representation from our company in the Milwaukee-Racine Club.

What I Get Out of Craftsmen's Club Membership

By JOHN A. WARYN

President, Newark (N.J.) Club of Printing House Craftsmen, and Superintendent of Hammer Press, Newark, N. J.

ONE of the finest tributes that can be paid an organization is for its "old timers" to stick with it. It not only is evidence of a secure foundation but also means that it is worth holding on to. The Craftsmen's movement holds this enviable position in that most of the Craftsmen who were instrumental in organizing the movement are still actively engaged in the promotion of its principles. It is inspiration of this type that attracts followers to carry on their good work into perpetuity.

When I acquired membership in the Craftsmen's movement some ten years ago, I was impressed most by its altruistic purpose, when men will get together once a month to discuss mutual problems and share their technical knowledge with one another, it is worthy of support. It immediately brought to my mind that here is an organization that really does something for its members, and as a result the industry becomes a better one for all of us.

I was so impressed by the Share Your Knowledge Movement, and the fact that

JOHN A. WARYN

Discusses benefits received from membership in Craftsmen's movement.

so many outstanding men in the craft are members—it was more than enough to inspire me to add my little bit toward its perpetuation. It was a proud moment in my life when the first month of my association with the movement brought recognition in the form of an appointment to the board of governors of the Newark Club of Printing House Craftsmen. From then on I served the club in various capacities and finally reached the presidency in 1943. I am now serving in that capacity for a third term.

The movement is basically educational and is the finest organization for the dissemination of knowledge in the Graphic Arts. Anyone who becomes a member is bound to get something out of it even if he only attends monthly meetings. I know that I gained a great deal of knowledge at these meetings which proved very valuable to me in carrying on my work. It also offered a great many other opportunities: it gave me a chance to meet other individuals in the industry; I have made a host of new friends; I have learned organization work with all of its ramifications; and most of all it afforded me an opportunity to do something for an organization that has for its purpose the amelioration of the Graphic Arts Industry. It is more than just another organization—it is an ideal, and I am proud to be a part of it.

POST-WAR PAPER SHORTAGE

Graphic Arts Unity Group, 1440 Broadway, New York, N. Y., has published Part II of its *Are We Headed for a Disastrous Post-War Paper Shortage?* by George A. Britton. Perhaps some printing executives are not acquainted with the latest summary published in the booklet to the effect that the U. S. will be short of pulp by the end of 1945, approx. 1,000,000 T. Constructive remedial measures are given.

How Membership in the Craftsmen's Club Makes Me a Better Mechanical Executive

By CARL HARNER

Composing Room Foreman, The Egry Register Co., Dayton, Ohio, and Immediate Past President, Dayton Club of Printing House Craftsmen.

THE Craftsmen movement will help any member of the Graphic Arts to be a better executive by the practice of the motto—Share Your Knowledge.

The Craftsmen's Club has offered much to me for improvement: the monthly meetings, the *Share Your Knowledge Review*, the Craftsmen's Library, and personal contact with members of other branches of the trade, and the pride and prestige that go hand in hand with the word "Craftsmen."

The monthly meeting may offer only one point of information that you will be

CARL HARNER

Tells how Craftsman membership improves his plant executive capacities.

able to use, but that one point will set the mind to work and most always lead to many more ideas that help a lot in solving the daily problems. The meeting invariably leads to discussion by men who are faced with the same problems as you are, and are willing to discuss freely and offer their ideas.

The *Review*, through the Educational Department, keeps one abreast with new ideas and machinery advanced through the trade journals, plus very timely and helpful articles by Craftsmen who pass their thoughts and experience along to other Craftsmen.

To all of this one must be willing and able to offer his share, as one receives most by being an active Craftsman.

Personal Benefit Received by Plant Executive from Craftsmen's Membership

By AMOS W. BISHOP

Manager, The University of Chicago Printing Dept., Chicago.

AS A representative of plant and production management, I am happy to contribute to discussion of the subject: "What personal benefit does the plant executive receive from fellowship with other craftsmen executives by reason of belonging to a Craftsmen's Club?"

The true executive is ever seeking to improve his knowledge of the business he has chosen to follow. There are three sources of information available to him: (1) That found in books, (2) That which he possesses, and (3) That which is possessed by other individuals. Knowledge found in books may not be up-to-date, or it may be inaccessible; that which an individual possesses may be insufficient or unreliable, but that possessed by other individuals combined may be found sufficient.

AMOS W. BISHOP

An outstanding Craftsman outlines personal benefits derived from Craftsmanship

The requirements of an executive are that he is able to and does use good sense, wise judgment and clear intelligence. Whether these are natural with him or whether it is necessary for him to acquire them through study and experience, it is advisable to test them by contact with men of mutual interests.

Membership in a Craftsman Club immediately affiliates one with 7,000 other Craftsmen spread over this country, in Canada, Hawaii, Australia, Cuba, and Africa. In my opinion, no organization in the Graphic Arts industry has as much to offer the executive who really is desirous of keeping himself "out in front" as does the International Association of Printing House Craftsmen.

The printing industry will undergo many changes in the years that are ahead —changes that today might startle most of us. Whatever they may be, however, we can rest assured that the first to see or know of them will be we men who are members of this great organization. I value my membership in it.

Navy Commendation Award Presented To A. L. Garber, Ashland, Ohio

IN A colorful ceremony on Saturday afternoon, July 14, the U. S. Navy presented its Commendation Award for Printers to the A. L. Garber Company, Ashland, Ohio. The presentation was made by Commander Frank M. Knox from the executive offices of the U. S. Navy Department.

Miniatures of the original certificate were presented to each employee following formal presentation to their representative, J. Webster Burns. C. F. Crain, President, accepted the award on behalf of the company. Rev. J. Ray Klingensmith was master of ceremonies, and Col. George W. Bicknell spoke for the Joint Chiefs of Staff.

In presenting the award, Commander Knox spoke of the great need that the Navy had for printing, and of the vital part it played throughout planning, building and operations. He emphasized the excellent performance of the Garber Company in management cooperation, in adherence to its schedules, in accuracy and quality of work, and in the maintenance of security in the production of confidential material for the Navy.

In accepting the Award of the company, Crain spoke of the cooperation and fine relations the company has enjoyed with the Navy Department. He complimented to men and women of the Garber organization on the work they had done, and expressed for the company its determination to continue to do what it could to help toward final victory.

J. Webster Burns, who was chosen by the employees to represent them, discussed their appreciation of the recognition given them by the Navy, and promised full cooperation in continuing the work.

The award consisted of a beautiful certificate designed by Bruce Rogers. In addition to the inscribed miniatures of the certificate given each employee by the Navy, the company presented a blue and gold button commemorating the occasion.

The A. L. Garber Company has handled a great deal of war work in addition to that for which the award was made, particularly for the Air Forces and the Army Map Service.

Arrangements for the ceremony were handled by Lieutenant Wilson for the Navy, and by Harry Dotson for the company. The company's annual picnic dinner followed the ceremony.

Commander Frank M. Knox (center) of the U. S. Navy, presented the Navy Commendation Award for Printers, to C. F. Crain (left) president of the A. L. Garber Co., and J. Webster Burns (right), representing company employees, in Ashland, Ohio, on Saturday, July 14.

This is Printing Industry of America's committee on organization: Left to right are James F. Newcomb, New York, N. Y.; President Harold W. Hill, Cleveland; Donald L. Boyd, Huntington, W. Va. First general meeting of the new organization is scheduled to be held October 1. Until that time, an expanded executive committee will direct affairs.

Printing Industry of America, Inc.

Now a Going Organization

BY A vote of 829 affirmative votes and no member dissenting, the Printing Industry of America, Inc. was formed in Washington, D. C., on July 12 at a special meeting of the UTA membership. This organization on a business volume basis, will enroll the country's commercial printers in a unified trade association. This was announced by Harold W. Hill, President.

The announcement followed a meeting of members of United Typothetae of America at which that organization formally voted to change its name to Printing Industry of America, Inc., and thus became one of the components of the enlarged organization.

The formation of Printing Industry of America, Inc., Mr. Hill explained, is the result of several months of effort on the part of United Typothetae of America and the Joint Committee on Government Relations of the Commercial Printing Industry.

To serve the commercial printing industry effectively, Mr. Hill continued, Printing Industry of America, Inc., will extend activities that have been carried on by the United Typothetae of America and, in addition, will operate a broad-scale program in the fields of government relations, public relations, and technical service.

Until the first general meeting of the new organization, scheduled for October 1, 1945, activities will be directed by an expanded executive committee composed of the present UTA members: James L. Cockrell, Tulsa, Okla.; Harold W. Hill, Cleveland; Donald L. Boyd, Huntington, W. Va.; William C. Boles, Nashville, Tenn.; Fred E. Little, Wilmington, N. C. and Arthur A. Wetzel, Milwaukee, Wis., to which has been added the following: Harry Ambrose, Nashville, Tenn.; Raymond Blattenberger, Philadelphia, Pa.; Robert Caffee, Pittsburgh, Pa.; Henry V. Duffy, Philadelphia, Pa.; Carl E. Dunnagan, Chicago; Clyde K. Murphy, St. Louis, Mo.; James F. Newcomb, New York, N. Y., and Ralph Thomas, Detroit, Mich.

This enlarged executive committee by unanimous motion of its members present appointed Donald L. Boyd and James F. Newcomb, a committee of two to represent the executive committee and were charged with the following:

1. Consideration of policies to govern activities between now and October 1.
2. Establishment of member relations department.
3. Establish a program of activity in field selling.
4. Establish a public relations program.
5. Make available within the industry the necessary leadership for consideration by the Board of Directors at the first annual meeting of the new association in October.

The executive committee also appointed L. Irving Lamphier, acting general manager, during the interim period. To those three men will fall the task of coordinating a program that will be acceptable to the industry as a whole.

Eligible for membership in Printing Industry of America, Inc. are commercial printers who are members of local or regional associations and who, upon their association's affiliation with PIA, automatically become members of the national body. Eligible for memberships-at-large are commercial printers in whose areas there are no local associations.

United Typothetae of America was formed in 1887. At the time of its consolidation today into Printing Industry of America, Inc., had enrolled 1055 members. Its officers until the annual meeting are: President, Harold W. Hill, Cleveland; Treasurer, Donald L. Boyd, Huntington, W. Va.; Vice Presidents; William C. Simpson, Louisville, Ky.; Fred E. Little, Wilmington, N. C.; Rollie W. Bradford, Denver, Colo.; Arthur A. Wetzel, Milwaukee, Wis., and Harry F. Ambrose, Nashville, Tenn.

Mosstypes Bulletin

Theodore Moss Company, 33 Flatbush Ave., Brooklyn 17, New York, has published a 16 page illustrated booklet on Mosstypes plastic plates for advertising and printing.

Miniature reproductions of advertisements reproduced by Mosstypes are shown. A page of questions and answers pertinent to technical phases of the plates is also shown. Booklet is printed from Mosstypes. "Facts you should know about molding of plastic plates" is presented on another page.

Shall We Remodel—or Shall We Build New?

Pertinent and helpful discussion pertaining to decisions which must be made previous to remodeling present building or erecting a new printing or newspaper plant building.

By ROBERT W. DICKERSON*

**Architect and Engineer, Robert W. Dickerson Div. of Maier-Outcalt-Dickerson, Cleveland, Ohio.*

THE immediate postwar period will witness the launching of a large number of plant improvement programs by printers and publishers. That statement is based upon information stemming from a number of sources. One of these is the survey conducted a few months ago by *Printing Equipment Engineer*. The questionnaires sent out at that time produced positive evidence that a vast amount of such work is in contemplation. Further support for the statement is to be found in the actual orders on the books of manufacturers of printing machinery and equipment.

These improvement programs will vary widely in their nature and extent. They will range all of the way from the installation of a few pieces of equipment, through varying degrees of plant modernization, to completely new plants. Because a great many of them will involve buildings as well as equipment, and because inquiries indicate a live interest in the subject, some discussion of "Remodelling" vs. "Building New" seems timely, and may be helpful to those who face the necessity of deciding which course to follow.

Influencing Factors

The factors which influence the decision to "remodel" or to "build new" are numerous, and they vary in relative importance from one project to another, but, in general, some of the following values will be weighed before such a decision is reached:

(a) Adaptibility of existing building to efficient use
(b) Construction and condition of existing building
(c) Cost
(d) Site and location
(e) Appearance and sentimental considerations

Functionally, the purpose of any building is to house, support and serve the activities of its occupants. Obviously, then, the probabilities that a building will serve efficiently as a printing or publishing plant are materially enhanced if it has been planned and constructed for that specific use. The production processes and equipment of the printer and publisher are special and peculiar to the industry, and, to the greatest degree practicable, the building which houses them should be planned and constructed about them. That, obviously, does not mean that many buildings constructed for another use do not have excellent possibilities for adaptation to printing and publishing operations, for assuredly there are many such. It does mean, however, that before an existing building is acquired for use as a plant, or before an improvement or expansion program is inaugurated for a building presently occupied, its adaptibility to an efficient layout should be thoroughly investigated. It is in the day-to-day operation of the plant that efficiency and economy of production will pay dividends, or where its lack will take a continuous toll through the years.

Factors which influence decision to remodel or to build new are numerous. Some of these are: (a) Adaptability of existing building to efficient use; (b) Construction and condition of existing building; (c) Cost; (d) Site and location; (e) Appearance and sentimental considerations.

You Can "Roll Your Own"

The exploration of the layout possibilities of a building is a job which any printer or publisher can do. It is, moreover, an activity which will pay dividends, whether an improvement program is contemplated or not. Such a survey of space use is very revealing, and many industrial plants maintain a continuous study of operating layouts—a perpetual inventory of space use. Reduced to simplest terms, the procedure is as follows: Lay out the available space at convenient scale, showing the location of all walls and other permanent features, and indicating doors and windows and other openings which are to remain in use. Then cut out cardboard templates of all equipment and furniture which is to be accommodated, using same scale as was used for the space layout. These templates can then be arranged and rearranged until a satisfactory working layout is accomplished, or it is determined that one is not possible within the limitations of the space available. In the November 1944 issue of *Printing Equipment Engineer* this method of space use analysis was discussed in detail and readers are referred to it for further information.

For convenience in comparing two or more layouts, it will be advantageous to have the space diagrams made on a paper having sufficient transparency that blue prints or black-and-white reproductions can be made from them. By outlining the templates upon the prints with pencil or crayon, or by attaching the templates to the space diagram prints with mucilage or paste, the work can be preserved for further study or record. Though currently unavailable, rubber cement is ideal for this purpose, since it will hold the templates securely enough for all practical purposes and yet will permit their ready removal and relocation. Moreover it will not wrinkle the prints as most other adhesives will do.

Planning is the only process by which a practical working layout can be achieved and whether the work is done in the interest of better use of the space now occupied, to explore the possibilities of contemplated space, or in the layout of a new building, its importance cannot be overstressed. There is no substitute for planning.

Structural Loading

In the terms of the magnitude and nature of the loads to be supported, printing and publishing operations must be classed as heavy industry. Much of the process equipment is heavy, and some of it produces vibration and shock in its operation. These factors of weight and vibration present problems both of

safety and of efficient layout. Safety, because a structure excessively overloaded deteriorates and becomes unsafe, and layout, because the location of equipment with reference to safe bearing on the floor, rather than with regard to its use, is not conducive to efficient operation.

Within the stress limitations recognized in good engineering practice, most

In the terms of the magnitude and nature of the loads to be supported (in plant buildings) printing and publishing operations must be classed as heavy industry.

materials of construction will withstand moderate overloading, intermittently applied, and will largely recover their original form when the excess loads are removed. When these safe limitations are greatly exceeded, or a structure is continuously overloaded, the deflections and distortions become permanent, fatigue develops and embrittlement of the material often occurs. Instances of outright structural failure are relatively rare, due to the use of generous factors of safety in design, but examples of excessive and permanent deflection are all too prevalent. They shorten the life of the structure, add a burden of maintenance, and create most unsatisfactory working conditions. Traffic, particularly composing room traffic, over a sagging, uneven floor can be very troublesome.

Floor Loading

In recognition of improved quality and greater dependibility of materials as well as improvement in design techniques, there is a growing tendency toward design for lighter floor loading. Within reasonable limits, the resultant economies are desirable, but floors designed for the live loads currently recommended by some authorities, while possessing sufficient strength, are likely to lack the necessary mass and rigidity to absorb and dissipate vibration instead of carrying it throughout the structure. The saving in cost between a floor designed for a live load of 100 pounds per square foot and one capable of supporting two or three times that loading is too slight, in most types of construction, to justify the difference in over-all results.

Whether a building is one of relatively recent construction or one which has stood for many years, no change in occupancy which increases floor loadings should be made and certainly no program of improvement should be inaugurated without first having the structure carefully inspected and analyzed. This is an undertaking which calls for the combined talents of a competent structural engineer and an alert and experienced builder. It involves not only the strength of the structure, but its permanence as well, its state of preservation and the toll the elements may have taken through the years. Any point where water may enter a structure is a potential zone of deterioration, and if the exposure has been of long duration the damage may be serious. Cornices, copings, balconies, roofs and roof appendages are spots which should be examined carefully. In many parts of the country, if the building is of timber construction, termite damage may be extensive. Termite damage, like dry rot, may reach the point of causing structural failure without there being any visible indication that it is in progress. In a locality in which these insects are known to be present, a thorough job of sleuthing should be done.

Sewer Complications

The availability and adequacy of sewer, water, power, etc., for a new location should be investigated. These utilities can usually be provided or extended but there are many instances on record where they have presented problems. The survey of a site recently ac-

Availability and adequacy of sewer, water, power, etc., for a new building location should be investigated. A sewer in the street may be so near the surface that the basement floor can be drained only by sump and pumps to lift drainage to sewer level.

quired for the construction of a new printing plant disclosed the necessity of building a private branch sewer to connect to the public sewer a few hundred feet away. In the survey of a building a few months ago, preliminary to an extensive remodeling program, it was found that the sewer in the street was so near the surface that the basement floor could be drained only by the use of a sump and pumps to lift the drainage to the sewer level. These are situations which are just as likely to plague a new building project as an alteration, but, unless discovered in time they can cause plenty of trouble and embarrassment.

Urge to Make New Out of Old is Strong

It may be a heritage from our grandmothers but, whatever its source, the urge to make something new out of something old is a strong one. It is a laudable one, too, within whatever limits we choose to call practical. Sentiment, and all sorts of other considerations may enter into the definition of the word "practical", but, in the end "cost" is usually the most potent determinant, if that elusive element can be determined. The cost of alteration work is always

The urge to make something new out of something old is a strong urge. It is a laudable one, too, within whatever limits we choose to call practical. Cost of alteration work is always more difficult to predetermine than that of new work.

more difficult to predetermine than that of new work, and the reasons are obvious. In the first place, it is more difficult to define the amount of work to be done. Where the building is relatively modern, and where drawings showing the original work are available, the work is greatly simplified, but where the building is of ancient vintage many assumptions must be made as to the original construction until work is actually started and the "innards" of the structure can be exposed.

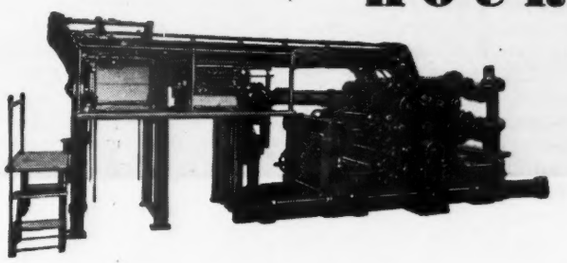
Then, too, the owner of a building undergoing rejuvenation often finds it hard to limit himself to the original scope of the project. Parts of the building on which no work was contemplated look drab or out of place in contrast with the new and, bit by bit, are included in the program. Such expansion of the program may be entirely justifiable and a thoroughly sound procedure, but unless a current cost picture is maintained, the cumulative result is likely to be a rude awakening when the grand total is assembled.

Need for Old-Fashioned Honesty

There is need for much old fashioned honesty in the setting up and carrying through of a building modernization program. It should be displayed first by those who advise and assist the owner in setting up the program. to the end that the estimates of probable cost represent their best judgment and are not founded upon wishful optimism and the desire to get the program under way. The owner, too, if he is honest with himself, will temper sentiment with realism and avoid the aftermath of a perfectly sound program

HAIRLINE REGISTER

AT 5500 SHEETS PER HOUR



Commercial printers are now producing moderate as well as long runs with the speed and economy formerly achieved only by large edition printers. They are doing it with this Cottrell sheet feed multi-color rotary press, that delivers up to 5500 multi-color sheets per hour.

They are producing work of split-hair accuracy. Contributing to their precision results are the Cottrell's spirally-grooved plate cylinders, its register-hook system, and the Cottrell principle of printing all colors on a single impression cylinder, with one gripper bite and a minimum of makeready.

These commercial printers know the combination for printing profits: speed plus accuracy, plus savings in paper that result when all colors are printed with the sheet on the same impression cylinder.

Cottrell gives printers this winning combination to a degree unapproached by any other press now manufactured.

C. B. COTTRELL & SONS CO.

WESTERLY, RHODE ISLAND

New York: 25 East 26th St. • Chicago: Daily News Bldg., 400 West Madison St. • Claybourn Division: 3713 North Humboldt Ave., Milwaukee, Wis. • Smyth-Horne, Ltd., Chipstead, Surrey, England

run wild. History abounds in proof that the cost of an alteration program, if not rigidly kept in check, can assume proportions so closely approaching the cost of a new building that all economic reason for not having built a new plant is gone. It is no less than tragic to make such a discovery when it is too late to do anything about it.

When To Build New

If the best estimates that can be made indicate that the cost of a remodeling program approaches that of the construction of a new building, it is almost certainly to the owner's advantage to follow the latter course. He will then be able to lay out his operations with no other limitations than those imposed by the size and shape of the property upon which it is to be built. He can be sure of adequate structural strength and rigidity and can have a plant that is modern in its appointments and equipment.

There are numerous other economic factors which should be weighed. One of these is insurance, a continuing year-after-year cost which often carries heavy penalties due to unusual hazard. In a new plant these premiums are usually materially reduced.

Location of New Building

For certain types of business, location is of great economic importance. Surveys and traffic counts are made with the objective of finding the spot where the traffic is heaviest. For a restaurant, a service station, or most any retail mercantile establishment this interest is obvious. For a printing plant or a newspaper building the interest is entirely different. Pedestrian traffic volume is of little or no consequence, and heavy vehicular traffic can be detrimental. For

There is need for much old-fashioned honesty in the setting up and carrying through of a building modernization program.

a newspaper or a large printing establishment, where newsprint or raw printing stock and supplies represent large volume, railroad trackage is desirable, and in all cases accessibility to streets which provide ready access for the delivery of raw materials and the dispatch of finished products should be had. It should also be said that while railroad trackage is, and will continue to be a desirable feature for newspaper and large printing plants, the trend toward extended trucking service is unmistakable and emphasizes the importance of accessibility to trucking highways and ample facilities for unloading, loading, etc. It is therefore possible that the site and location of an existing plant may be such that they are an important factor in the decision to modernize and continue to occupy a site.

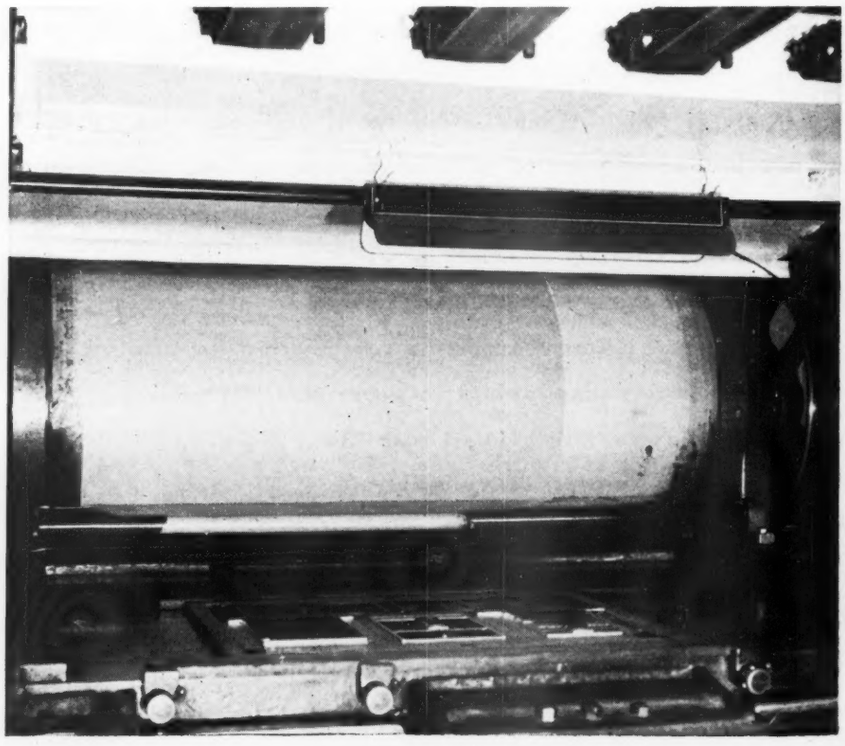
Appearance of Utmost Importance

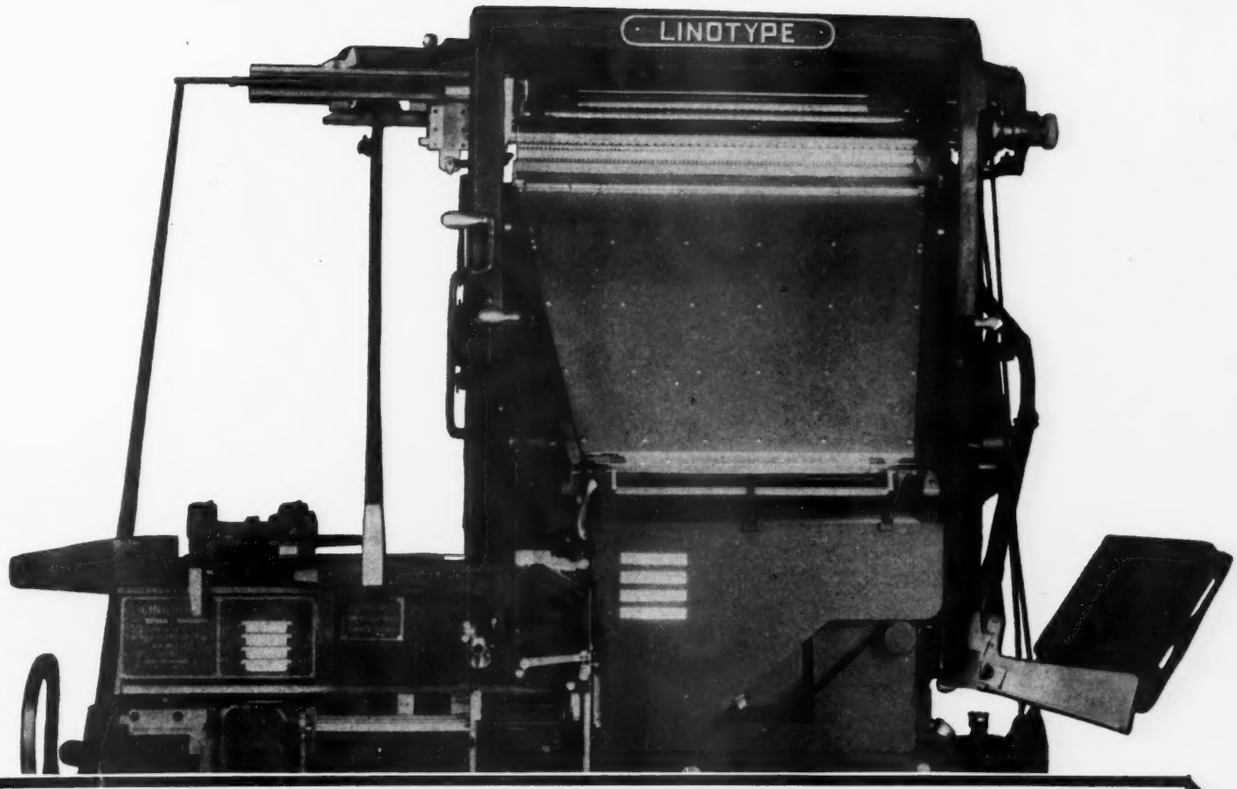
If there ever was a time when it was wise to ignore appearance in the design of a building, that time is no more. No matter how low its cost nor how utilitarian its purpose no building should offend the eye, either of the owner or of the public. A building should reflect the character of its owner, and usually does. It is obvious, therefore, that the printer or publisher who cherishes the well being of the community which supports him will make his place of business an asset to its civic and cultural life. The fact applies with equal force to an old or a new building. There are many old buildings which have a dignity and charm of their own which should be preserved in any modernization work that is done upon them. Of others that is not true, and any program for improving them should include attention to that important phase, for beauty, never let it be forgotten, has tangible value and is a productive asset. Thus, beauty and utility combine happily.

If we could summarize, in one more-or-less simple statement, our advice to those who must decide between building a new plant and remodeling or modernizing an existing structure, it would be something like this: If the existing building adapts itself to an efficient production layout, if its construction is sound and strong enough to support the loads to which the new layout will subject it, and if the cost of accomplishing the desired end is such that, when the work is completed, it will show a substantial advantage over the outlay necessary to provide the same facilities in a new plant, the soundness of a remodeling program is clearly indicated. If, however, it can not be clearly predetermined that this economic advantage will be realized when the work is finished, it is highly probable that the end result will be more satisfactory if a new building is constructed.

Auxiliary Lighting Helps Presswork

IN the plant of The William Feather Printing Company, Cleveland, some attention is being given to auxiliary lighting on the presses by Pressroom Foreman William Schneider. While only a 15 in. tube is shown in the accompanying illustration on a Miehle 56 in. press, Mr. Schneider plans to equip all of the cylinder presses with the maximum length fluorescent tubes that can be fitted under the feed board of each press when they become available. He has also painted the underneath surface of the feed board with white paint. The white reflecting surface of the feed board together with the fluorescent lamp increases visibility greatly while the pressman or compositor may be working on the form. This is another instance which demonstrates that printing plant executives are conscious of the need for easier seeing properties in lighting means and want to do something about it.





"worthy *of the* workmen"

EVERY LINOTYPE *must be worthy of two groups of workmen:*

The first is that group whose handiwork it is—the product of engineering skill and mechanical precision. All of the materials, every component part, each assembly, must reflect the experience and skill and pride that these workmen build into the machines bearing Linotype name-plates.

The others are those craftsmen who sit before the Linotypes of the world and operate the keyboards—trained men and women, the product of whose hands are the shining lines of Linotype slugs that keep the whole world informed.

These two groups of workmen comprise both an inspiration and a challenge to our Linotype craftsmen.

LINOTYPE LINOTYPE BROOKLYN

NEW YORK CITY BOSTON CHICAGO NEW ORLEANS SAN FRANCISCO LOS ANGELES
CANADIAN LINOTYPE, LIMITED TORONTO, CANADA

Linotype Caslon Old Face Series

★ *And Let's Be Worthy of Our American Heritage By Buying Bonds!* ★

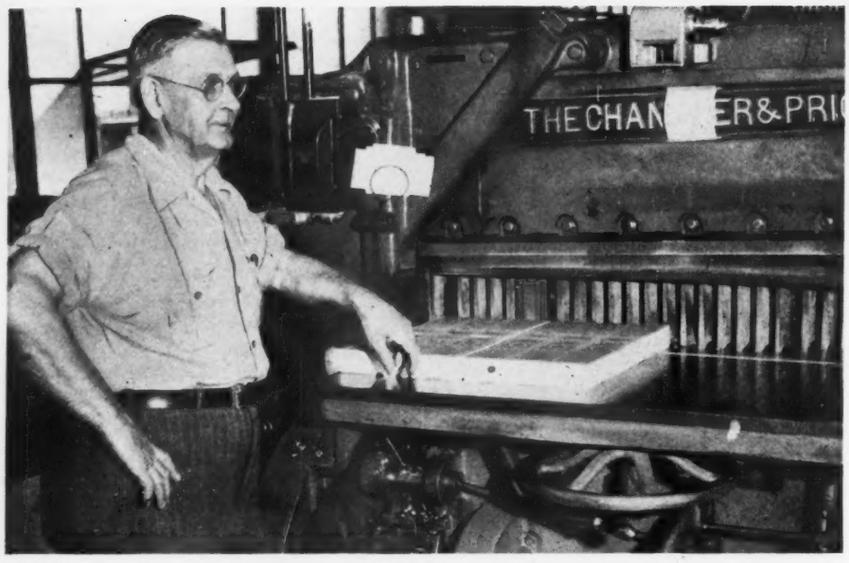


Fig. 1.—Otto Burg, bindery foreman at A. S. Gilman, Inc., Cleveland, before Chandler & Price paper cutter. Attached to the adjustable back gauge of the cutter may be seen a special guide block devised by Mr. Burg which brings the side guide of printing presses to the paper cutter. When the job is returned to the cutting department, the trimming can be done with hairline accuracy.

Guide Block Permits Split Hairline Trim

ACCOMPANYING this article are two illustrations descriptive of a guide block devised by Otto Burg, bindery foreman in the plant of A. S. Gilman, Inc., Cleveland. The purpose of the block is to permit the paper cutter operator to jog paper against the left guide of the cutter and against the special guide block so as to duplicate the manner of feeding the paper into the presses. Where paper stock has been cut on the bias, this method is imperative to accomplish accurate cutting. In other words, the left side of the paper cutter represents the press gripper edge of the paper which is usually squared on the press and the guide block attached to the back gauge of the cutter in the illustration represents the side guide on the press. All jogging is done against the left side and the special guide block in the paper cutter. Another way to express the function of Burg's guide block is to state that block brings the side guide of the press to the paper cutter. The reason for the use of the left side of the cutter is to prevent the knife, by its shearing motion from right to left, to distort the position of the lift of stock. The paper resting against the left side receives support to withstand the cutting action.

It is possible in many plants that the paper stock, the cutter, or the press may be slightly out of square. Through the use of the guide block it simulates the register of the sheet on the press because of the duplication of the press guides in the paper cutter. Then when the job is returned to be cut after being printed, the cutter operator can trim the job to hairline dimensions.

Usually, the side guide on automatic presses is adjustable from 3 in. to 9 in. On hand-fed presses, the guides are adjustable to most any convenient position. On close register cutting, the head stoneman consults with Mr. Burg to ascertain the correct position in which the side guide will be placed. The guide block is then placed in the cutter back gauge in the approximate position as the side guide on the press. So far as the ribs in the face of the back gauge of the cutter are concerned, it will be seen that they permit the placing of the guide block in the approximate position of the side guide on the press.

Mr. Burg states the guide block has been in use at the Gilman plant for a long time and has proved its usefulness in promoting accuracy in printing and the subsequent trimming of the finished work. Mr. Burg stated, however, that the block doesn't work so well with lightweight stocks, (such as 40 lb. papers) but if these stocks do come through his department and the trimming must be done with hairline accuracy, the jogging is very carefully done.

To illustrate how closely this block permits precision trimming, Mr. Burg was working on a 4 ply stock, 22½ in. by 28½ in. two-color job, several up on the sheet, when this writer came into his department. Each of the color plates carried engraver's cross-register marks. Careful inspection of the trimming revealed that the job was trimmed to split the register mark in both directions. In the case of this particular customer, Mr. Burg said, if the job were not trimmed to split the register marks from top to bottom of each lift the customer would reject the work. There are 144 sheets to the lift.

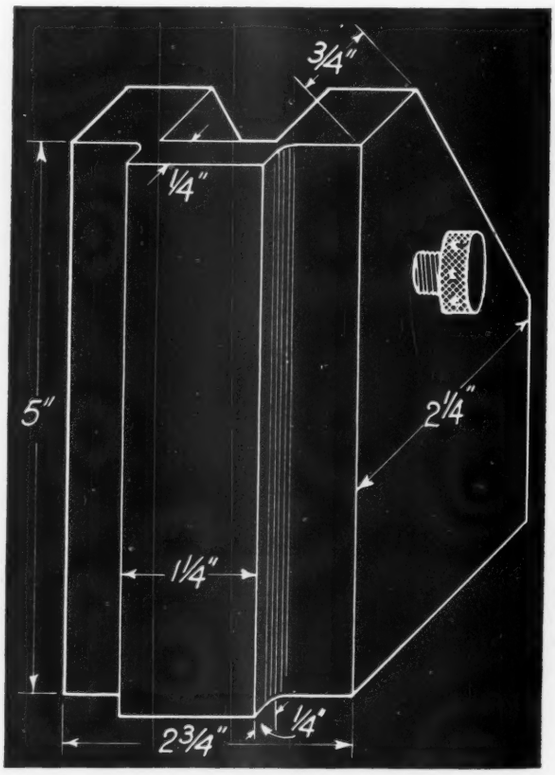
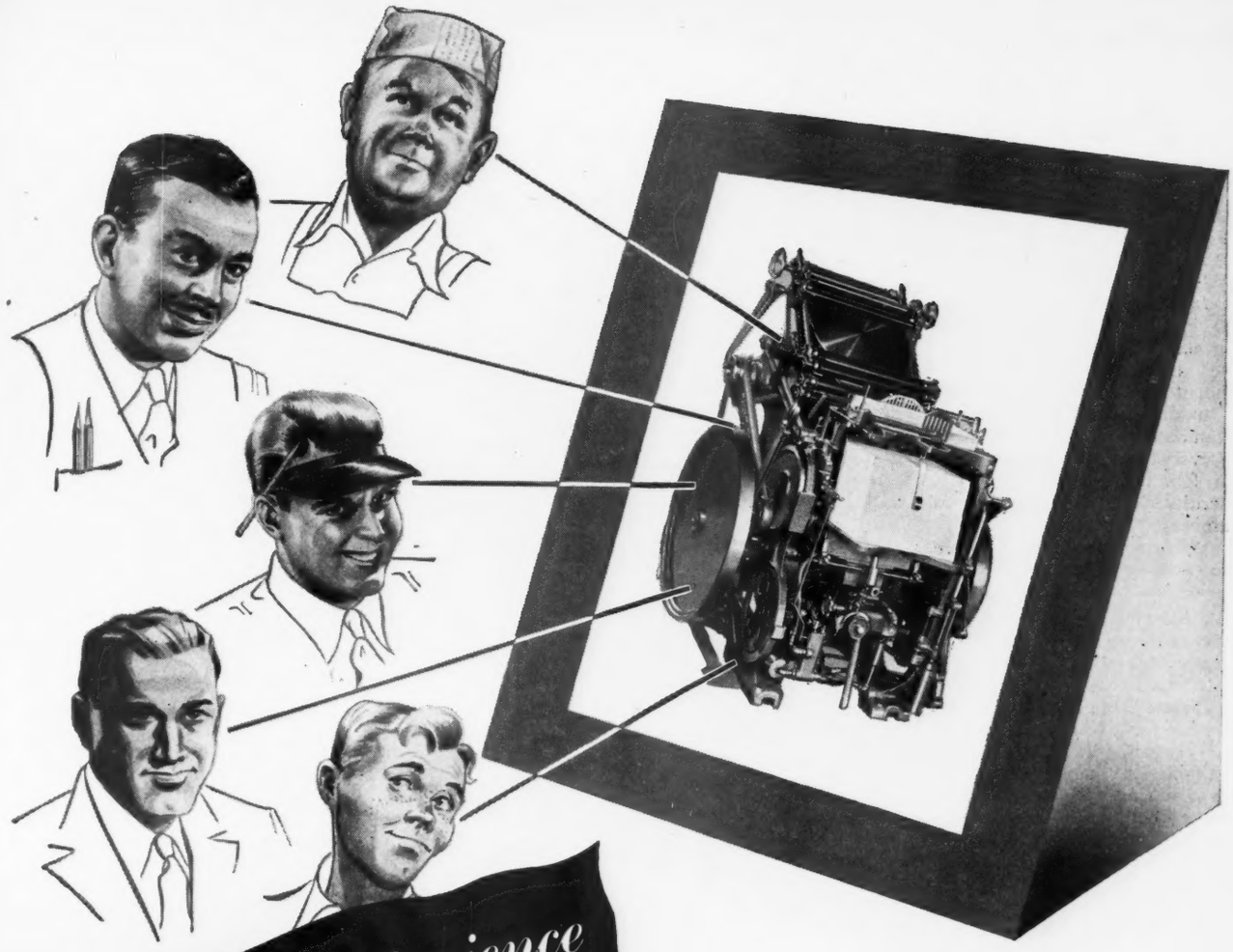


Fig. 2.—Isometric diagram showing dimensions of special paper cutter guide block discussed in the accompanying article. Only one knurled thumb screw is shown in this diagram — there is another on the opposite side. The screw is ⅜ in. by 24 pitch. The knurled screw head is ¾ in. diam. The pin wrench holes in the head are ⅛ in. diam.

Exceeded Quota

According to WPB, the Washington (D.C.) *Times-Herald* has been charged by WPB with exceeding its allowable quota of print paper by 865.62 T. during first three quarters of 1944 and the first quarter of 1945, according to a suspension order made public on August 3.

The newspaper must reduce the use of print paper below its permissible quota by 215 T. per quarter during the fourth quarter of 1945, and the first three quarters of 1946, unless otherwise specifically authorized in writing by the board.



Years of Experience

...are built into every C&P Press and Paper Cutter

TODAY'S C & P presses and paper cutters, with all their modern accuracy and refinements, didn't reach their present perfection overnight on some designer's drafting table.

Instead, each desirable performance feature was brought forth slowly, painstakingly, as the product of many minds, thoroughly tested in actual use before being incorporated into the finished product. They represent the accumulated experience of thousands of users, plus the technical skill of engineers whose life work has been the development of presses and paper cutters to give you better production at lower cost. This is the C & P way.

Remember this when considering your post-war purchases of printing machinery. A printing press or paper cutter should be a long-time investment. Plan it that way before committing yourself.

THE CHANDLER & PRICE COMPANY · Cleveland, Ohio

Manufacturers of Printing Machinery for 60 Years

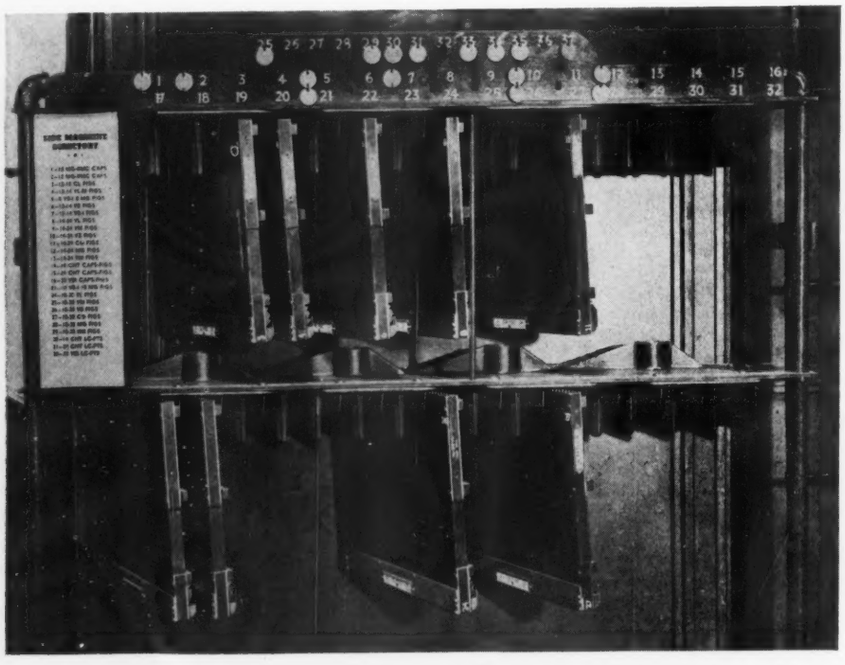
Handling of Auxiliary Magazines Systematized

THIS article is about a centralized rack for Intertype auxiliary magazines in the composing room of the Cleveland *Plain Dealer*. The rack was devised by Composing Room Superintendent Deo A. Padgett, who went into a huddle with Chief Machinist Ike Chalifoux to get the materials together. As everyone knows (that is, those who are familiar with the handling of a quantity of auxiliary magazines on a number of machines) the hunting of a magazine when wanted by an operator can cause considerable lost time when it is necessary to make a change.

At the *Plain Dealer* there are 13 Intertypes in the ad alley equipment. Supplemental equipment in addition to split main magazines consists of 32 auxiliary magazines containing advertising figures and cap matrix fonts. In addition, there are 9 auxiliaries which must be kept available for changing. The usual method of storing auxiliary magazines is to place them on racks provided by the manufacturer at the back of the keyboard-magazine mechanisms. With this arrangement, the magazines become scattered over a number of machines. Where there are a number of machines in operation, it can be seen that operators would be compelled to spend production time looking at a number of machine racks before locating the auxiliary magazine which is wanted.

The materials from which the rack in the accompanying illustration were secured involved the expenditure of hardly any money. All of the side magazine racks (each holding four auxiliary magazines) were removed from the machines. Eight of these racks in turn were securely fastened together—two rows of four racks each. Thus each row will accommodate 16 magazines, or a total of 32 magazines for the entire rack. The flat steel bars used to fasten the racks together were employed by Intertype Corporation to fasten bases to the bottom of cases when shipping machines to customers. As will be seen in the illustration, some ordinary steel pipe with fittings were used to assemble the rack. The upper row of magazines is approximately chest high so that little or no stooping is required when lifting a magazine from the lower section.

EDITOR'S NOTE—*The method employed by Mr. Padgett for identifying and locating magazines is different than the method described by James A. West in* Printing Equipment Engineer *some time ago. Mr. West, composing room superintendent of Judd & Detweiler, Washington, D. C., described a system for numbering the 115 main magazines used on 18 machines in that plant. These magazines are kept in standard racks. Mr. West prepared and posted a directory of magazines allocated to numbered slides in the magazine rack, giving the name of the font contained in each numbered magazine and the corresponding slide number in the rack. Each of the Linotypes of course, carries a number and each is supplied with a quantity of small cards numbered to correspond with the number of the machine. When the operator takes the magazine from the rack he fills in the magazine number on the card carrying the number of the machine on which the magazine is to be used and places the card in a clip above the slide from which the magazine is taken. This card (carrying both machine and magazine numbers) indicates on what machine the magazine has been placed.*



The method used to identify the magazines and the machines is as follows:

In the illustration, the upper row of figures (Nos. 25 to 37 inclusive) with pegs and brass checks on the panel at the top of the rack indicates the numbers of the 13 machines in the ad alley. Each peg is supplied with as many round brass checks (approx. 1 in. diam.) as there are side magazines on each machine.

The second row of figures (Nos. 1 to 16 inclusive) indicates the number of spaces reserved in the upper section of the rack for storing the side magazines which have been numbered from 1 to 16 inclusive, with white paint both at upper right corner of the top plate and at the lower end of the right-hand magazine side bar.

The third row of figures (Nos. 17 to 32 inclusive) indicates the number of spaces reserved in the lower section of the rack for storing the side magazines numbered from 17 to 32 inclusive.

It will be seen that all of the side magazines have been numbered from 1 to 32 inclusive and numbered checks have been provided for each ad machine. If the machine has one side magazine there is one numbered check, if the machine has two side magazines there are two numbered checks, if the machine carries four side magazines there are four numbered checks. One check is provided for each magazine on the machine.

When approaching the rack, for instance, the operator wishes to secure No. 25 side magazine and it is missing from the rack, the numbered check of the machine that the magazine No. 25 is on, will be hanging on peg No. 25 in the third row. In other words, if No. 25 magazine is on machine No. 29, numbered check 29 will be hanging on peg No. 25.

In returning a magazine to the rack, the operator just reverses the procedure. He takes the numbered check on the peg coinciding with the returned magazine and places it on the proper peg in the top row representing the machine number. For instance, if he is returning magazine No. 25 from machine No. 29 to the rack, he removes the numbered check No. 29 and returns it to the proper peg in the top row carrying machine No. 29.

Granted Ex-Quota Paper

According to an announcement made by the War Production Board on August 7, a total of 29 newspapers have obtained extra-quota grants of newsprint aggregating 2,460.38 T. on appeals before the War Production Board. This is the second list covering grants of tonnage made for the third quarter. The largest grant was 503 T. and the smallest was 1 T.

"HUBEREX" **"SUPREX"** **"ECONEX"**

THESE INKS ARE DIFFERENT because they "stay put"—set faster and print sharp. Cuts reproduce like the camera told them, advertisers stop calling for re-runs, and even debutantes admit "it looks like me—well, just a little"!

The new Huber News Black Inks *know their place* . . . give a cleaner, sharper reproduction that makes reading easier. And what's more, they eliminate build-up on angle bars, pipes, etc. They decrease first impression offset, lessen strike-through, and have less tendency to rub off on hands.

One of these three new inks is certain to exactly fit your needs—and all are now obtainable at short notice. Consult your Huber representative or write any office of J. M. Huber, Inc.: New York, Chicago, St. Louis, Boston.

HUBER PRODUCTS — HUBER INKS — IN USE SINCE 1780

Comparative Table of Paper Grades Using Present Basis Weights and Proposed 1000 sq. in. per 1000 Sheet Count

THE Comparative Table printed here, and published by Fletcher Paper Co., shows the simple calculation that could be used if one basis, namely 1000 sq. in. per 1000 sheet count were used for all grades of paper.

At the present time, most grades use a 500 sheet basis but are based on sizes from 374 sq. in. to 950 sq. in.

The International Association of Printing House Craftsmen, the UTA, Graphic Arts, the U. S. Bureau of Standards, and the Printing and Publishing Division of WPB, have approved a calculation of 25x40-1000.

There has been criticism that the term might be misinterpreted as a size and therefore in the interests of simplification the term 25x40 is eliminated in this table and the term 1000 sq. in. is substituted in its place. Both are the same dimension.

The basis is 1000 sq. in. per 1000 sheet count. A column is also set up in grams per square meter to be used by the export trade.

COMPARATIVE TABLE OF GRADES USING PRESENT BASIS WEIGHTS COMPARED TO 1000 SQ. INCH PER 1000 SHEET COUNT AND GRAMS PER SQ. METER

1000 Square Inches per 1000 Sheet Count	Book, Bible 25 x 38—500	Groundwood, Kraft Sulphite 24 x 36—500	Blotting 19 x 24—500	Index 25½ x 30½—500	Bristol 22½ x 28½—500	Cover 20 x 26—500	Writing, Envelope Tablet, Ledger 17 x 22—500	Carbonizing 20 x 30—500	Grams per Square Meter
23	.....	10	.....	.....	.....	.....	.....	.....	17
29	.....	12.5	.....	.....	.....	.....	.....	.....	21
30	.....	.....	.....	.....	.....	.....	.....	9	22
33	.....	.....	.....	.....	.....	.....	.....	10	24
35	.....	15	.....	.....	.....	.....	.....	.....	25
37	.....	16	.....	.....	.....	.....	7	11	26
40	.....	17	.....	.....	.....	.....	7.5	.....	29
42	20	18.5	.....	.....	.....	.....	.....	.....	30
43	.....	.....	.....	.....	.....	.....	8	.....	31
45	.....	.....	.....	.....	.....	.....	8.5	.....	32
46	.....	20	.....	.....	.....	.....	.....	.....	33
48	.....	20.5	.....	.....	.....	.....	9	.....	34
50	.....	.....	.....	.....	.....	.....	.....	15	36
53	25	23	.....	.....	.....	.....	10	.....	37
58	.....	25	.....	.....	.....	.....	.....	.....	41
59	.....	.....	.....	.....	.....	.....	11	.....	42
63	30	27.5	.....	.....	.....	.....	12	.....	45
70	.....	30	.....	.....	.....	.....	13	.....	49
74	35	32	.....	.....	.....	.....	.....	.....	52
75	.....	.....	.....	.....	.....	.....	14	.....	53
80	.....	34.5	.....	.....	.....	.....	15	.....	56
81	.....	35	.....	.....	.....	.....	.....	.....	57
85	40	37	.....	.....	.....	.....	16	.....	60
92	.....	40	.....	.....	.....	.....	.....	.....	66
95	45	41.5	.....	.....	.....	.....	18	.....	67
96	.....	.....	.....	.....	.....	25	.....	.....	68
104	.....	45	.....	.....	.....	.....	.....	.....	74
105	50	.....	.....	.....	.....	.....	.....	.....	75
107	.....	46	.....	.....	.....	.....	20	.....	75
115	.....	.....	.....	.....	.....	30	.....	.....	81
116	55	50	.....	.....	.....	.....	.....	.....	82
126	60	.....	.....	.....	.....	.....	.....	.....	89
127	.....	55	.....	.....	.....	.....	.....	.....	89
128	.....	55.5	.....	.....	.....	.....	24	.....	90
135	.....	.....	.....	.....	.....	35	.....	.....	95
137	65	.....	.....	.....	.....	.....	.....	.....	96
139	.....	60	.....	.....	.....	.....	.....	.....	98
147	70	.....	.....	.....	.....	.....	.....	.....	104
150	.....	.....	.....	.....	.....	.....	28	.....	106
154	.....	.....	.....	.....	.....	40	.....	.....	108
158	75	.....	.....	.....	.....	.....	.....	.....	111
162	.....	70	.....	.....	.....	.....	.....	.....	114
168	80	.....	.....	.....	.....	.....	.....	.....	119
172	.....	.....	.....	.....	.....	.....	32	.....	121
174	.....	75	.....	.....	.....	.....	.....	.....	122
179	85	.....	.....	.....	.....	.....	.....	.....	126
185	.....	80	.....	.....	.....	.....	.....	.....	130
190	90	.....	.....	.....	.....	.....	.....	.....	134

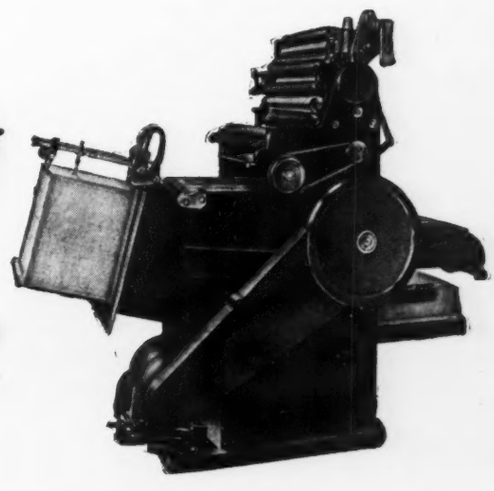
1000 Square Inches per 1000 Sheet Count	Book, Bible 25 x 38—500	Groundwood, Kraft Sulphite 24 x 36—500	Blotting 19 x 24—500	Index 25½ x 30½—500	Bristol 22½ x 28½—500	Cover 20 x 26—500	Writing, Envelope Tablet, Ledger 17 x 22—500	Carbonizing 20 x 30—500	Grams per Square Meter
192	.....	.....	.....	.....	.....	50	36	.....	135
197	.....	85	.....	.....	.....	.....	.....	.....	139
200	95	.....	.....	.....	.....	.....	.....	.....	141
208	.....	90	.....	.....	.....	.....	.....	.....	147
210	100	.....	.....	.....	.....	.....	.....	.....	148
214	.....	.....	.....	.....	.....	.....	40	.....	150
220	.....	95	.....	.....	.....	.....	.....	.....	155
230	.....	.....	.....	.....	.....	60	.....	.....	162
232	110	100	.....	90	.....	.....	.....	.....	163
236	.....	.....	.....	.....	.....	.....	44	.....	165
250	.....	.....	.....	.....	.....	65	.....	.....	175
252	120	.....	.....	.....	.....	.....	.....	.....	178
255	.....	110	.....	.....	.....	.....	.....	.....	179
257	.....	.....	.....	.....	.....	.....	48	.....	180
264	.....	.....	60	.....	.....	.....	.....	.....	185
274	130	.....	.....	.....	.....	.....	.....	.....	192
277	.....	120	.....	.....	.....	.....	.....	.....	195
280	.....	.....	.....	.....	90	.....	.....	.....	197
282	.....	.....	.....	110	.....	.....	.....	.....	198
289	.....	125	.....	.....	.....	.....	.....	.....	204
294	140	.....	.....	.....	.....	.....	.....	.....	207
307	.....	.....	.....	.....	.....	80	.....	.....	216
311	.....	.....	.....	.....	100	.....	.....	.....	219
312	.....	135	.....	.....	.....	.....	.....	.....	219
316	150	.....	.....	.....	.....	.....	.....	.....	222
324	.....	140	.....	.....	.....	.....	.....	.....	224
346	.....	.....	.....	.....	.....	90	.....	.....	244
348	.....	150	.....	.....	.....	.....	.....	.....	245
350	.....	.....	80	.....	.....	.....	.....	.....	248
360	.....	.....	.....	140	.....	.....	.....	.....	252
366	175	.....	.....	.....	.....	.....	.....	.....	256
373	.....	.....	.....	.....	120	.....	.....	.....	263
384	.....	.....	.....	.....	.....	100	.....	.....	270
404	.....	175	.....	.....	.....	.....	.....	.....	284
420	200	.....	.....	.....	.....	.....	.....	.....	296
436	.....	.....	.....	.....	140	.....	.....	.....	306
440	.....	.....	100	.....	.....	.....	.....	.....	310
463	.....	200	.....	.....	.....	.....	.....	.....	324
500	.....	.....	.....	.....	160	.....	.....	.....	350
528	.....	.....	120	.....	.....	.....	.....	.....	370
560	.....	.....	.....	.....	180	.....	.....	.....	394
564	.....	.....	.....	220	.....	.....	.....	.....	396
612	.....	.....	140	.....	.....	.....	.....	.....	430
624	.....	.....	.....	.....	200	.....	.....	.....	438

Several years ago, H. W. Hill, President of F. H. Hill Co., Cleveland, Ohio, put in an ATF Little Chief offset press. Before long, he added two of the larger Chiefs. *"Some letterpress printers,"* Mr. Hill writes, *"think it is not logical to go into offset without previous experience. We found that it is . . . our offset department handles many and varied jobs with production savings."*

ATF Chiefs are offset presses a letterpress printer can understand. Accessibility and easy adjustment are built in, such as impression cylinder that can be easily reached from a standing position . . . double-pile feed table that can be reloaded without stopping the press . . . delivery in full view for inspection. These are only a few of the details that add to convenience, production, and profit on the Chiefs.

ATF Chiefs and ATF Kellys make an ideal team for the modern plant. Right now, any ATF press can be reserved for delivery as soon as available. Ask the man who represents ATF for a copy of "Offset Answers," also about the ATF Civilian Priority Delivery Plan, or write to us direct.

ATF CHIEFS
are made in three sizes:
14x20; 17x22; 22x29



ATF

American Type Founders

200 ELMORA AVENUE, ELIZABETH B, NEW JERSEY

Elco Universal Typemeter

(Continued from Page 35)

columns the caps have been fitted into their percentage widths in the lower case alphabets. These columns are for lines set in lower case, or caps and lower case, and use the width of the lower case alphabet.

The system is fully explained in supplementary pages. The following subjects are discussed: setting lines of caps and lower case, finding the average width of a character, number of characters in one pica, using the charts, to find the width of any character, setting caps and small caps, accurately counting unusual words.

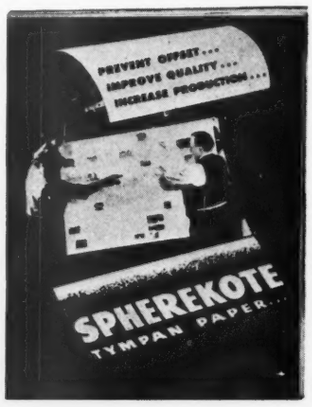
The price of the *Elco Universal Typemeter* is $5 per copy. Address Elco Typographic Service, Second and Deuber, N.W., Canton 6, Ohio.

New Spherekote Bulletin Available

An illustrated 12 page booklet printed in color has been announced by the Minnesota Mining and Manufacturing Co., makers of Spherekote glass bead coated tympan paper.

In addition to detailed information on the availability of the product, types of backings and sizes of glass spheres, the booklet illustrates various uses of the product and types of equipment employed on rotary, job, flatbed and perfector presses.

An interesting application of Spherekote product is as an idler roller covering



material to prevent offsetting. This is furnished in rolls 1½ in. by 120 ft. to wind spirally around idler rollers in place of the nutmeg grater type of idler roller covering.

Copies can be obtained gratis by writing to the Advertising Department, Minnesota Mining and Manufacturing Co., St. Paul 6, Minn.

Zinc-in-Stock Chart

IMPERIAL Type Metal Company has prepared a 5 in. by 8 in. chart printed on cardboard, showing the standard sizes of 16 ga. zinc, number of sheets per case and approx. case weight of its Register Zinc for photo-engravers which the company has in stock. The zinc is complete with redibak coating. Information is given that with special mill rolling 18 ga. 21 ga. and 11 pt. zinc is available.

Tufcrete Resurfacer Folder

THE Tufcrete Company has published a six page illustrated folder in which is described a floor resurfacing material called Tufcrete. Tufcrete is intended to repair and restore floors, ramps, loading platforms, traffic ways and storage areas. This material is purchased in desired quantities and the work is done in the plant where floors need repairing. Tufcrete is claimed to outwear wood or concrete floors. Wood, wood block, brick and concrete floors may be repaired with material. A copy of the bulletin is available from the company direct or *Printing Equipment Engineer* will gladly pass along your request.

Martin with Linotype

Otto B. Martin is now a production engineer and is working out of Linotype's Los Angeles office. Before returning to California in May 1945 he was production superintendent with the W. F. Hall Printing Company in Chicago.

Wotta Blacks won't Offset!

3 ways TO LICK OFFSET!

Wotta Non-Scratch Halftone Black

Wotta Non-Scratch Book Black

Wotta Job-Bond Black

They're blacker than a tar baby's heel . . . print cleaner than a whistle . . . dry fast and hard on the stock but not on the press. And follow the fountain rollers? Say, they lay right smack in there . . . even on the fastest and longest of runs.

Wotta Blacks will reduce down-time and spoilage, too . . . saving paper is mighty important now-a-days. Write for full details about our trial offer now. You can't lose . . . Wotta Blacks must out-perform any ink you've ever used . . . or you don't pay for them.

FREE. . . brand new booklet telling how to set up your own supply control system. Chock full of helpful data on pre-checking ink, paper and plates. Eliminate press room grief! For your copy use coupon or your letterhead.

MAIL COUPON FOR DETAILS ON FREE TRIAL

E. J. Kelly Co., 1927 N. Pitcher St., Kalamazoo, Mich.

O.K. Tell us about your trial offer on Wotta Blacks.

P.S. Don't forget my free copy of your new book on "How to Correct Ink Plate and Paper Troubles Before Press Time."

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Address_____

E. J. KELLY COMPANY, KALAMAZOO MICHIGAN

TO THE GRAPHIC ARTS INDUSTRY

FOR

Distinguished Service

Ranking high among those American industries whose production achievements are contributing to ultimate victory in this war, is the Graphic Arts Industry.

Since the beginning of the war every printing craftsman and piece of equipment have been called upon to perform a prodigious service in printing material for our military services, Federal bureaus, overseas requirements and domestic consumption. The wartime printing production forms a total linage and tonnage that is staggering to the imagination.

Federated is proud to salute every individual in the Graphic Arts Industry . . . and proud, too, that its own production of type metal in all commercial forms has contributed in part to the accomplishment of this herculean task.

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Nation-wide service with offices in principal cities

ONE OF A SERIES OF ADVERTISEMENTS DEDICATED TO THE PRODUCTIVE ROLE OF AMERICAN INDUSTRY IN WORLD WAR II

Wartime Mechanical Conference

(Continued from Page 40)

President Stuck was then introduced and explained the aims and objects of the Washington unit meeting.

The technical section of the meeting then got into full swing. As in the Portland unit meeting held on May 13, a discussion arose about standardizing measurements in picas on copy and drawings sent to composing rooms and photo-engravers. A committee was appointed to confer with advertising agencies and department store advertisers to handle the situation in Portland. R. C. Atterbury, composing room foreman of the Seattle *Daily Star*, was appointed chairman of the committee.

The subject of shallow advertising mats (Coca-Cola cuts were mentioned) came up for discussion. The answer seems to be to start at the source—the agencies. The suggestion was made that conference officers look into the possibility of having ample mats made from some advertising cut (Coca-Cola was mentioned). The mats are to be molded both by direct pressure and by rolling. The idea is to cut the mats in two, and then send the agencies one-half of the mat produced by each method to show the difference in depth between the two.

It was also suggested that the officers of the conference contact syndicates producing color comic and magazine mats, and request that these mats (for the four colors) be kept and delivered in proper sequence. If this can be done, all four of the "first" rolled mats, as well as of the "twentieth" would come together, thereby helping the stereotyper and pressman attain better register.

At 10 o'clock p.m., the president introduced Associate Publisher Frank Blethen and Business Manager Rodbury of the Seattle *Times*, as well as Business Manager John Callaghan of the Seattle *Post-Intelligencer*, all of whom made short talks.

The permanent "hold-together" committee appointed in Seattle for the Washington territory, consists of Chairman Lester F. Crebassa for the press-room; Jake Webb, engraving foreman of the Seattle *Times*, for the photo-engravers; R. C. Atterbury, composing room foreman of the Seattle *Daily Star*, for the composing department; George Heaster, stereotype foreman of the Seattle *Times*, for the stereotypers; Charles Purdy, superintendent of the Tacoma *Tribune*, for management; and Mervyn Lipman, manager of California Ink Co., for the manufacturers and suppliers.

Northern California Unit Meeting

The Northern California unit meeting was held at Whitcomb Hotel, San Francisco, on Monday, June 25. President Stuck related what had been done at the unit meetings in Oregon and Washington. A number of newspaper editorial and business executives were then introduced.

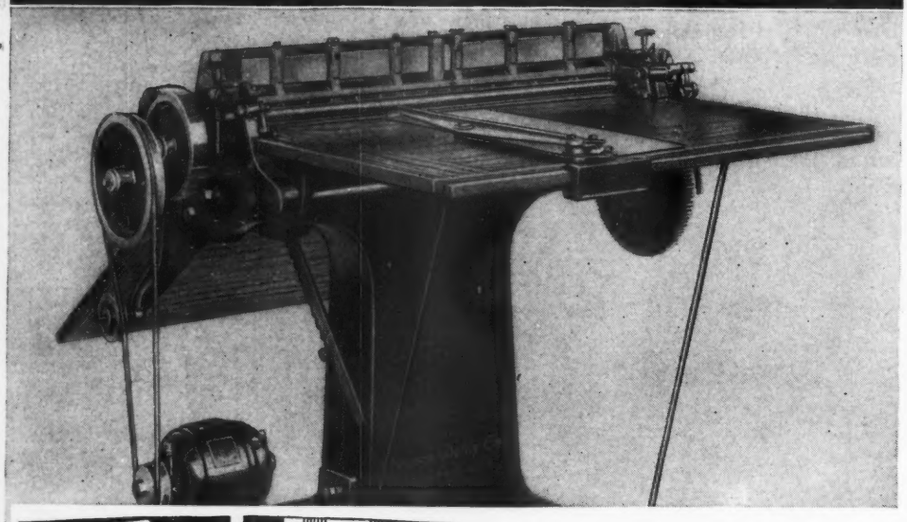
Clark Baker, lighting counselor for the Northern California Electrical Bureau, gave an instructive and technical half-hour talk on fluorescent lighting. He illustrated his talk with specimens of fluorescent tubes, explaining structure and usage of each.

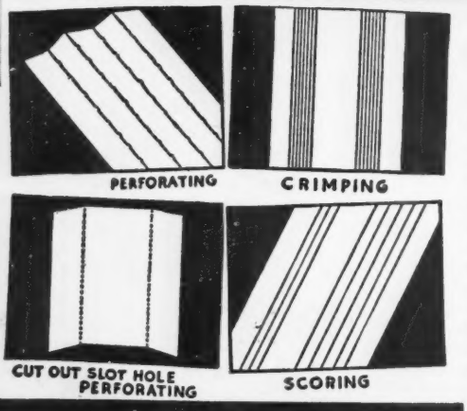
An open forum was then held, in which many mechanical executives participated.

Officers of Pacific Conference

Officers of the Pacific Newspaper Mechanical Conference are: President, Ira Stuck, composing room foreman of the San Francisco *Shopping News*; Vice President, Fred J. Moyer, composing machinist, Los Angeles *News*; Vice President, Harry Davidson, art director and photo-engraving foreman, San Francisco *Call - Bulletin*; Secretary - Treasurer of Southern Division, Jerry Bolman of the Los Angeles *Shopping News*; Secretary-Treasurer of Northern Division, Edward L. Conley, color press foreman of the San Francisco *Chronicle*; Director, C. J. McDermott, San Francisco *Examiner*; Director, Fred J. Wilson, San Francisco *News*. Unit Chairmen are as follows: Southern California, Fred J. Moyer; Northern California, Ira E. Stuck; Oregon, Louis F. Otto; Washington Unit, Lester F. Crebassa.

NOW AVAILABLE!





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The famous N-D 30" ROTARY SLOT PERFORATOR! ONLY A FEW UNTIL V-J DAY! Material requirements for important war orders remain high. However, you may obtain the N-D 30" ROTARY SLOT PERFORATOR, *without priorities* if you take action AT ONCE! Recent easement of restrictions permits building A LIMITED QUANTITY, when and as materials are available. Contact us today. Remember, this is the remarkable machine that feeds 1 to 4 sheets; does either slot-hole or knife-cut perforating; and also crimps and scores. And it permits perforating to be done before printing because sheets are ironed out and lie flat. Get samples of work. Act on this opportunity today.

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N-D 30" ROTARY SLOT PERFORATOR

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Patents

For The Graphic Arts Field

The patents reported here are those issued on June 19, June 26, July 3 and July 10.

This data is compiled exclusively for Printing Equipment Engineer by Invention, Inc., is verified in the United States Patent Office, and is comprehensive of all patents in the field of each heading for the dates specified.

For copies of patents listed here, specify the patent numbers and send 10c for each separate patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

RULES PATENT INVALID—On May 21, the United States Supreme Court ruled that the Gessler patent, U. S. patent No. 2,087,190, on heat-set, quick-drying letter press inks was invalid, reports the *American Ink Maker*. Thus concluded, after nearly two and one-half years in court, the first litigation over printing inks to reach and be decided by the Supreme Court. The action started when Interchemical Corp., New York, parent corporation of International Printing Ink and holder of the patent, sued Sinclair & Carroll Co., New York, for alleged infringement. The case was argued originally before Judge John F. Symes in the U. S. District Court for the Southern District of New York, Jan. 18-27, 1943. That court decided on May 22, 1943, that the patent was invalid in that it had been anticipated by prior art patents and publications. This decision was later reversed in the Circuit Court of Appeals for the Second Circuit, Aug. 28, 1944. In finding the Gessler patent invalid for want of invention, the Supreme Court, who heard the case April 5, 1945, reversed the Circuit Court of Appeals' ruling.

Binding, Cutting, Perforating:

2,379,171. PAPER CUTTER which uses hydraulic means for reciprocating knife. Oil or other liquid is pumped to both ends of a cylinder in which a piston is mounted with its rod projecting through upper end of cylinder and connected by means of a link with the cutter bar. Link is ajustable, so that it may be lengthened or shortened to limit operation of knife. Dual valves, controlled by dual levers, must be operated simultaneously to actuate knife. Invented by Frederick D. McLaughlin, Shaker Heights, Ohio. Assigned to The Chandler & Price Company, Cleveland, Ohio. Application November 5, 1943. 8 claims.

2,379,971. MOLD FOR BINDING SHEETS in the manner of a book such as for making memorandum pads, calendars, etc. A compartment for receiving a stack of sheets to be bound, is open at one end to expose an edge portion of the stack. Cover casting compartments are positioned at opposite sides of the compartment receiving the stack of sheets, the side compartments having open ends adjacent the open end of first compartment and adapted to be filled with molding plastic. A cavity at the open end of the first compartment communicates with all of the side compartments and the planes of the compartments are in such angular relation to each other that they intersect within the cavity. Invented by John J. Krehbiel, Bridgeport, Conn. Unassigned. Application December 21, 1937. 15 claims.

Composing Room Equipment:

2,378,473. APPARATUS FOR SELECTING TYPE CHARACTERS which consists of a holder, similar to a visible file holder, carrying cards on each of which are printed lines of a selected type face, the lines being set in different type sizes from 72 point down. A scale at the bottom of each card is divided into sections corresponding to the type sizes and has an index positioned in accordance with the characteristic width of the particular type face on the support. A movable gage, the numbered divisions of which represent the number of characters in lines of different widths, is aligned on the index of the fixed scale of the desired type face, so that the number of characters in the line in question, as indicated on gage, will be opposite the corresponding type size indicated on the fixed scale. Thus maximum size of any selected face can be determined for a certain character count and space limitation. Invented by Anthony J. Evangelista, Boston, Mass. Assigned to Boston Herald-Traveler Corporation, Boston, Mass. Application April 3, 1943. 6 claims.

2,379,141. POLISHING WHEEL for cleaning the spacebands used in casting type on Linotype machines. A yielding force is exerted against the surface of the spaceband by this construction. Polishing face is composed of four circular polishing members of fibrous material, such as the end grain of wooden rings, and a polishing material, such as graphite. The innermost and outermost of the four rings are secured to a mounting plate adapted to be supported on a drive shaft. The other two rings are loosely retained so as to extend or "float" a predetermined distance beyond the polishing face. The floating rings are biased resiliently outwardly by coil springs so they follow as nearly as possible the irregularities in the space band being cleaned. Invented by Gerald S. Fuller, Schenectady, N. Y. Unassigned. Application September 29, 1944. 12 claims.

Feeding, Folding and Delivery:

2,378,478. GRIPPER MECHANISM, for use on printing press cylinder, which grips a sheet fed to cylinder by a parallel vise-like action at gripping point, thereby reducing the required gripping force for the movable gripping jaw, and relieving sheet from undue pressure. Movable gripper is arranged radially to cylinder axis and clamping action is also in a radial line. For elastic clamping pressure a long unitary leaf spring gripper, or laminated leaf spring gripper with long leaves, is used and is operated by a rock shaft that is independently mounted and thus relieved of strain. Invented by Charles Alonzo Harless, Oak Park, Illinois. Assigned to The Goss Printing Press Co., Chicago, Illinois. Application February 18, 1943. 3 claims.

2,378,523. SHEET GRIPPING DEVICE of the spring gripper or folded jaw type for cylinders of printing presses. Stationary resilient grippers are in the form of laminated leaf spring members mounted on cylinder and movable grippers are in the form of non-resilient fingers solidly mounted on the activating shaft. Vibrations are dampened and sustained by the cylinder which absorbs them so that no shocks are transmitted to the shaft or its operating cam mechanism. Thus this gripping mechanism can be used in high speed actions without production of detrimental shock. Novel arrangement and mode of mounting the resilient grippers permits the use of grippers of the length best suited to any size cylinder and does not require different arrangements of parts in different sizes of cylinders. By the use of sturdy non-resilient gripping fingers solidly mounted on shaft and having a smaller radius of action than would otherwise be the case, desired indentations and corrugations may be made even in thick sheets during the gripping action. Invented by Emory W. Worthington, Chicago, Ill. Assigned to The Goss Printing Press Co., Chicago, Ill. Application February 18, 1943. 4 claims.

2,379,495. APPARATUS FOR APPLYING ADHESIVE TO WEBS, particularly for use in combination with the dryer section of a paper web making machine. A roll winding device receives a continuously moving paper web from dryer section and is operable to transfer the moving web from a finished roll to a core to start winding a new roll. A coating of adhesive is applied to one surface of the rapidly moving web running to the roll winding device. The application of the coating is so synchronized with the transfer of web on the winding device from the completed roll to the new core that the section of the web

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Every sheet of ZOMO ELECTRIC ZINC *and* A-Z ALLOY, with or without Backote, may be identified by one of the well-known trade-marks, shown above.

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ATLANTIC ZINC WORKS

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bearing the coating lies at or adjacent the inner or core end of roll. Coating is dried while web is running to the winding device. An adhesive repellent coating, such as a paraffin solution, may be applied to the web surface opposite that bearing the adhesive. The repellent coating extends slightly beyond the adhesive coating toward the core end of web on each roll. Invented by Oscar C. Roesen, Scarsdale, N. Y. Assigned to Wood Newspaper Machinery Corp., Plainfield, N. J. Application September 23, 1941. 8 claims.

Miscellaneous:

2,378,624. FOUNTAIN FOR DISPENSING GLYCERINE to moisten the fingers of operators in a print shop. The container is cylindrical and has a vertically reciprocable plunger which cooperates with a well. Plunger within well has valves for pumping liquid for each depression of the plunger. A bore in plunger extends upwardly and opens into a cavity on upper end of the plunger so that bore will be filled with liquid at all times. When plunger is depressed, liquid is forced out into concave portion on upper end of plunger where it can be wiped off by the operator's hand. Invented by Jones Burnett Edwards, Charlotte, N. C. Assigned one-half to Samuel Schwartz, Charlotte, N. C. Application July 21, 1943. 3 claims.

Plate Making:

2,379,915. MEDIUM FOR USE IN MAKING CAMERA COPY developable by one chemical to form a dot pattern and by another chemical to form a row pattern, the rows being separated by surface portions nonresponsive to either chemical. Method of preparing consists in imprinting upon a surface a pattern consisting of spaced parallel lines of a tacky substance and dusting the surface with basic lead sulphate to cause it to adhere to the lines. Sulphate is then removed from the other portions of the surface. Surface is next imprinted with spaced parallel lines extending angularly to the first-named lines by means of an ink containing mercurous chloride. Ink is then removed from all portions of the surface except at the points where the ink is superimposed on the first-named lines. Invented by Maurice D. McIntosh, Cleveland Heights, Ohio. Assigned to Louis S. Sanders, Shaker Heights, Ohio. Application July 30, 1942. 10 claims.

2,379,964. ADHESIVE SHEET MATERIAL used for applying printing plates, both metallic and plastic, to wood or metal bases. The adhesive sheet comprises a layer of fibrous material coated on both sides with a normally dry, flexible, non-tacky, heat-activatable adhesive comprising a major proportion of a mixture of an adhesive agent selected from the group consisting of rosin, natural gum and wood pitch, and a plasticizer selected from the group consisting of petroleum jelly and an insoluble metallic soap. Invented by Edward Sidney Hole, London E. C. 4, England. Unassigned. Application April 11, 1942. In Great Britain May 13, 1941. 2 claims.

SAVE *ERRORS* with Teletypesetter

by catching them *before* slugs are cast

Punch a tape with the Teletypesetter perforator, put the tape in the operating unit, and the line composing machine sets the type automatically. But if an error is made in perforating the tape, the operator can back space the tape merely by pressing a key, and by depressing another key the error is "rubbed out," before it is cast in type.

When the Teletypesetter system is used for distant transmission, typewritten copy can be transmitted along with the tape, affording the operator a means of checking his copy before the slugs are made.

Teletypesetter has been saving time, money and errors for publishers and job printers for 13 years. As soon as our war job is done, Teletypesetter will be ready to *save* for you.

In the meantime, we shall be glad to accept your order for peacetime delivery. Write today for further details.

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Printing Inks and Related Chemicals:

2,378,786. OIL COLOR PASTE MANUFACTURED DIRECTLY FROM WATER WOOD PULP may be used in printing ink, paint, lacquer color base and pigmented coatings. Process comprises forming an emulsion of a water pulp color and a film forming material. Emulsion is coated thinly upon a moving surface and subjected to a heat treatment to drive off the water constituent of the emulsion. Residual pigment paste is collected from the moving surface. Invented by Clare Alexander Osborne, Toronto, Ontario, Canada. Unassigned. Application February 27, 1942. 11 claims.

2,379,236. PLASTICIZATION OF PLASTICS to obtain compositions that may be used in printing inks, as well as for reinforcement for safety glass, for treating fabrics, coating paper, metals, etc. First a fusible, soluble, organic plastic material is obtained in finely-divided, solid form. This is obtained by adding to a solution of the plastic a liquid non-solvent to the point of incipient gelatin, then chilling it to effect gelatin and simultaneously agitating it to separate liquid content by syncresis and to precipitate the plastic as a finely-divided suspension. Thereafter there is added more non-solvent and a plasticizer for the plastic which is soluble in the non-solvent to obtain a non-gelling suspension of the plastic in the plasticizer. Invented by John D. Jenkins, Wilkinsburg, Pa. Assigned to Pittsburgh Plate Glass Co., Allegheny County, Pa. Application October 11, 1939. 3 claims.

2,379,270. LEAD SILICATE PIGMENTS of opaque white color useful for rubber, printing inks, vitrified enamels, etc. Pigment comprises chemically combined lead oxide, silica and chlorine. The chlorine is not in excess of 5% of the total weight of lead and silicon calculated as PbO and silica. The pigment is formed by heating together—at a temperature nigh enough to combine the lead oxide, silica and chlorine in the solid phase without fusion—a mixture of the compounds which provide on heating only lead oxide, silica and chlorine. The chlorine is in combination with a cation which is volatilized at the temperature of heating. Invented by Louis E. Barton, Windsor, Conn. Unassigned. Application January 24, 1942. 13 claims.

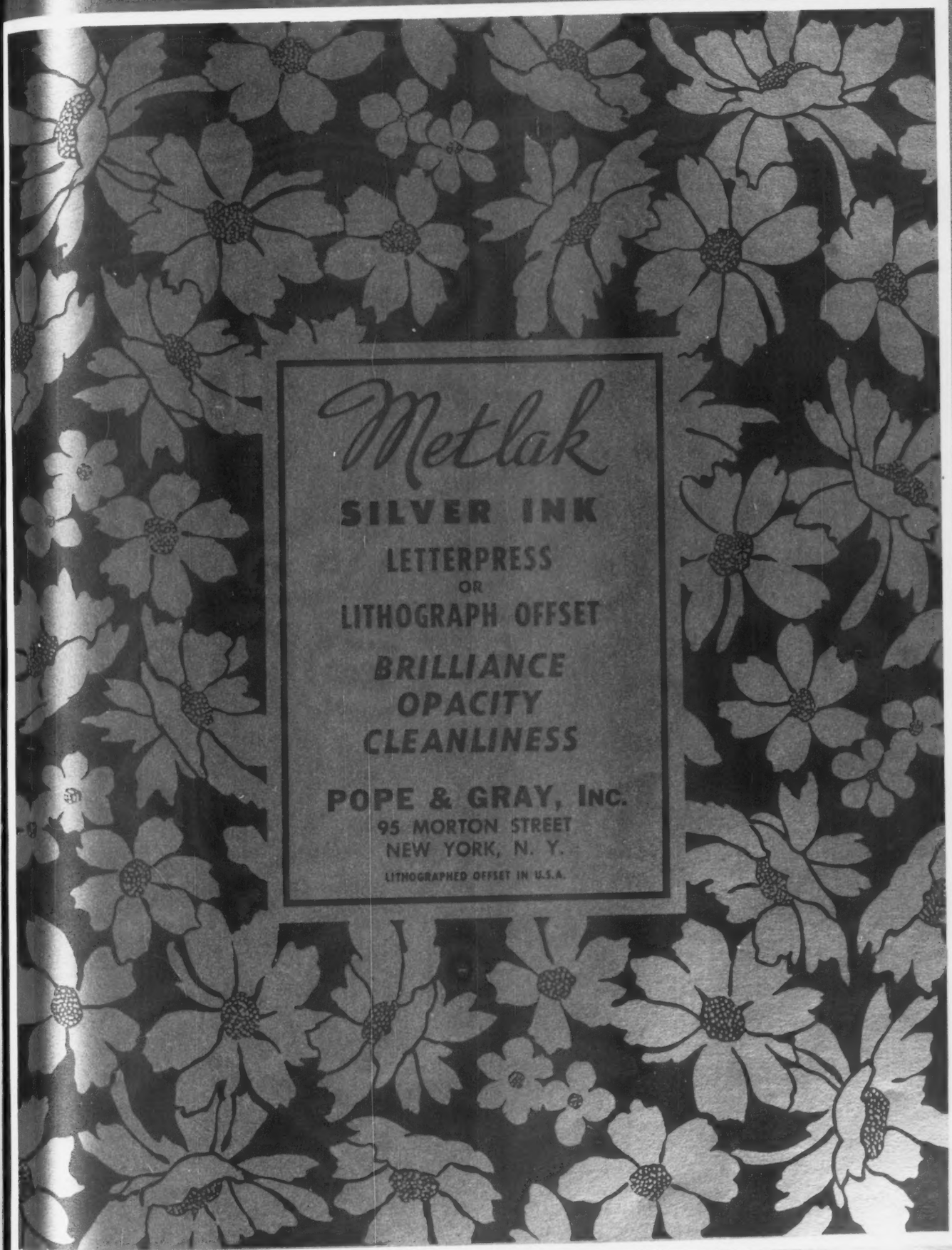
2,379,535. WETTING AND EMULSIFYING AGENTS useful in printing inks and pastes, as lubricants alone or with animal or vegetable fats or oils, in the textile industry as softeners and wetting agents, as well as for deliming and tanning leather. Compounds may be used alone or with colloids, such as glue, casein, starch, and emulsifying agents, such as fatty acids, bentonite, clays, carbon black, etc. One example is: Dioctyl N-(beta-sodium sulfo ethyl) asparate. Invented by Kathryn L. Lynch and Herbert J. West, Old Greenwich, Conn. Assigned to American Cyanamid Co., New York, N. Y. Application December 31, 1941. 2 claims.

2,379,604-5. PRINTING INKS and metal, wood, cloth, and paper coatings are prepared from benzyl cellulose and a melamine-formaldehyde resin which has been reacted with an alcohol containing from 4 to 6 carbon atoms and in which the molal ratio of formaldehyde to melamine is between 4:1 and 6:1. Fatty acid oil modified resins may be used to plasticize the products, and pigments and fillers may also be added. Invented by Robert C. Swain, Riverside, and Pierrepont Adams, Stamford, Conn. Assigned to American Cyanamid Co., New York, N. Y. Both applications September 20, 1940. 5 and 4 claims, respectively.

2,379,606-612. PRINTING INKS; adhesives; paper, metal and textile coatings; and compositions for use in the electrical industry are prepared by adding varying quantities of indene, coumarone, and coumarone-indene polymers to a melamine-formaldehyde resin such as one of those shown in companion patents 2,379,604-5, above. To effect a more rapid curing of the resin, a curing catalyst such as phosphoric acid can be used. Fillers and pigments may be added to the composition. The coatings are said to possess good alkali, heat, and water resistance. Invented by Robert C. Swain, Riverside, and Pierrepont Adams, Stamford, Conn. Assigned to American Cyanamid Co., New York, N. Y. Applications September 25, 1940 through October 5, 1940. 3 and 2 claims, respectively, for last two patents; 4 claims apiece for first 5 patents.

2,379,684. PRINTING PASTES, dyestuffs, and pigments of good strength and fastness and of a variety of shades may be produced by coupling the diazotized bases of the invention either with or without a substrate. The bases are prepared by condensing an amino-benzo-para-dioxan with a para-nitro-halogenobenzene and subsequently reducing the nitro group to an amino group. Acetic acid and sodium acetate are used in preparing one of the dyestuffs. Invented by Robert C. Conn and Frederic H. Adams, Bound Brook, and John P. Goulding, Neshanic Station, N. J. Assigned to American Cyanamid Co., New York, N. Y. Application December 10, 1943. 9 claims.

2,379,725. AZO DYESTUFF DERIVATIVES OF 6-AMINO-1,3-BENZODIOXAN. These new azo dyestuffs are of the general formula A-N=N-B in which A is the residue of a coupling component and B is the residue of an N-para-amino-phenyl 6-amino-1,3-benzodioxan. Bases of the present invention may be converted into diazo-sulfonates. Diazo-sulfonates, blended with appropriate ice-color coupling components and oxidizing agents may be incorporated into a printing paste, printed on a vegetable fiber and the pigment developed by steam. Invented by Hans Z. Lecher, Plainfield, John P. Goulding, Neshanic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IF you want cork molding blankets having better "come-back" properties to give sharp clean impressions even after severe usage use Eastern Tru-Molds. Greater flexibility holds edge cracking to a minimum. A Bakelite and cork combination insures perfect density not found in any other molding blanket. Your choice of "Medium," "Medium-Hard" or "Hard" density and here are the sizes and prices.

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20" x 24"	$2.50	$3.75	$4.50	.....
21" x 25"	2.75	4.00	4.75	$2.50
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Station, and Robert P. Parker, Somerville, N. J. Assigned to American Cyanamid Co., New York, N. Y. Application December 10, 1943. 11 claims.

2,379,812. METAL PROTEIN COMPLEX COMPOSITION useful as a paper size, water paint, ink, adhesive, and for laminating paper, in wallboard coatings and as rug backings. Principal constituents are zinc caseinate, 8 parts; clay, 20 parts; mixture of the diethylene glycol ester of rosin and the pentaerythritol ester of rosin—80% solution in xylene, 5½ parts; karaya gum, 0.1 parts; ammonia 28%, 2 parts; water at 140° F., 48 parts. Resins most useful are the polyhydric alcohol esters of a rosin, and particularly the glycerin and glycol esters of rosin or hydrogenated rosin, etc. The metal complexes of casein or vegetable proteins such as soybean protein have been found useful. Invented by Julius G. Little, Wilmington, Del. Assigned to Hercules Powder Co., Wilmington, Del. Application July 30, 1942. 14 claims.

2,379,950. TYPOGRAPHIC INK COMPOSITION comprises polymerized rosin, mineral oil, and a pigment. The rosin has a drop melting point between 90 and about 175° C. Rosin comprises between 2 and 65% of the composition. Invented by Irwin C. Clare, Elmhurst, Del. Assigned to Hercules Powder Co., Wilmington, Del. Application February 9, 1942. 3 claims.

2,380,142. HYDROGENATED. KETONE RESINS useful in coating compositions, impregnating compositions, film-forming compositions, as well as for electrical insulation, as a binder for printing inks, and in manufacturing molding articles. Resins are obtained by hydrogenating the resinous condensation product of an aldehyde at an elevated temperature with a member of a class of higher, unsaturated ketones. Catalyst used may be any active metal such as nickel, cobalt, iron, etc., supported on a carrier such as kieselguhr, activated alumina, silica gel. Iavented by Seaver A. Ballard, Berkeley, and Vernon E. Haury, El Cerrito, Calif. Assigned to Shell Development Co. San Francisco, Calif. Application April 26, 1943. 17 claims.

2,380,195. FRAUD-PREVENTIVE INK FOR SAFETY PAPER such as that used by banks. A stabilized leuco derivative of triphenylmethane dyes is used for printing the word "Void" invisibly so that application of ink eradicator causes the word to appear. Because humidity or ammonia in perspiration will cause premature development of ink color in such checks printed with insufficiently stabilized dyes, the object of this invention is to stabilize the ink to permit handling and keeping of checks over a period of time without either instability or embrittlement of the paper by acidity of stabilizer. Stabilizing compounds which will not migrate into the paper, and which are inert to the dye itself, are found to be acid-reacting organic esters of inorganic acids, or organic derivatives of such acids, etc., such as benzene sulfonic acids, and sulfated fatty acids. Invented by Burgess W. Smith, Rochester, N. Y. Assigned to The Todd Company, Inc., Rochester, N. Y. Application May 19, 1942. 8 claims.

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Printing Presses and Equipment:

2,378,444. ELECTRICAL CONTROL SYSTEM particularly for cloth printing machines which selectively energizes the main motor which drives the engraving rolls and the printing cylinder from a low voltage and a normal voltage generator to obtain wide speed variations. Machine can be operated under three distinct operating conditions: jogging, slow running, and fast running. Speed at which the entire machine will run under the fast running condition may be preselected. Machine can be brought to a stop from fast running either with or without first transferring to slow running condition. Speed of main motor may be varied by the voltage impressed on its armature and by its field excitation without disturbing the speed of other sectionalized motors. Invented by Roscoe H. Smith and Lloyd E. Miller, Cleveland, Ohio, and Leon M. Dunning, Boston, Mass. Assigned to The Reliance Electric and Engineering Co., Cleveland, Ohio. Application August 17, 1940. 25 claims.

2,378,690. INK FOUNTAIN which may be placed in the chase along with the form for light commercial work. A number of exchangeable fountains may be provided, one for each color to be used. As a new color is required, it is only necessary to remove one fountain and replace it with another and the only work required of the printer is that of cleaning the inking rollers and the distributing disc. The reservoir in the fountain includes a side wall, base, and top members secured to side wall, and a wall movable relative to side wall and base to provide an adjustable orifice between base and an end of movable wall. Wall may be moved by a nut in threaded engagement with top. The nut receives the stem of a plunger within the reservoir and the plunger may be progressively moved in one direction. Invented by Albert Dager, Los Angeles, Calif. Unassigned. Application January 24, 1944. 3 claims.

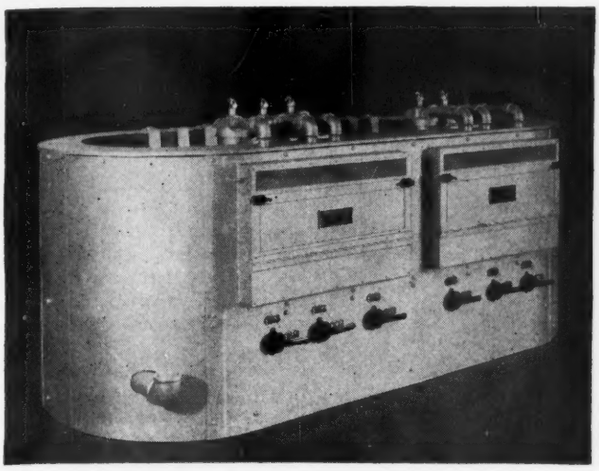
2,378,926. IMPROVED INKING MECHANISM for rotary printing units in which ink is supplied under pressure through an ink rail having an arcuate face that conforms to an ink receiving cylinder. Although cylinders and rollers usually may be rotated in only one direction, in this construction the cylinder may be rotated in forward and reverse directions to permit webs to run in both directions through units. Ink rail is adjusted by power driven means for movement radially to and from the cylinder and yieldably supported in any adjusted position. Invented by William F. Huck, Richmond Hill, N. Y. Assigned to R. Hoe & Co., Inc., New York, N. Y. Application October 5, 1942. 15 claims.

2,378,989. PORTABLE PRINTING MACHINE of the printing block type but different from previous machines in that it has a hand or power swinging frame, the movement of which causes relative movement between the printing block and the transfer pad in one of two lateral directions so that the machine is adapted for direct printing, offset printing, and multi-color printing. Invented by Siegfried Edels, London W. 1, England. One-half assigned to Rejafix Limited, London, England. Application October 8, 1941. In Great Britain November 16, 1940. 12 claims.

2,379,020. SILK SCREEN PRINTING MACHINE that has a screen support in the form of a continuous belt. The screen is on a rotating circular frame and contacts the belt except at a narrow zone where the belt is pulled inwardly around rollers to permit the adding of printing ink to the inside of the screen where it is distributed and forced through the rotating screen by a stationary squeegee. By supporting the screen on its inwardly facing surface by the belt, and with the assistance of viscous nature of the rapidly drying printing materials, air is excluded, and the sticking and gumming of printing ink upon the screen during operation is eliminated. Invented by William A. Maher, Glencoe, Ill. Unassigned. Application July 12, 1944. 12 claims.

2,379,072. CONTROLLER FOR MULTIMOTOR DRIVES for printing presses which uses an electromagnetic clutch to transfer the load from one motor to the other. Transfer of drive is made quickly and smoothly. When transfer from high to low speed is desired, control means slows down the high speed motor but effects energization of the clutch in advance of the slowdown. A relay operating as a function of this deceleration delays engagement of clutch for a temporary slowdown period. Invented by Cyril P. Feldhausen, Wauwatosa, Wis. Assigned to Cutler-Hammer, Inc., Milwaukee, Wis. Application April 24, 1942. 18 claims.

2,379,500. DEVICE FOR MAKING JOINTS IN THERMOPLASTIC BELTS which are used as endless die wiping belts for die stamping presses for imprinting from intaglio engraved plates and dies, the belts serving to remove surplus ink from the plate or die surface. Two portions of the belt are clamped together with end edges protruding toward each other, such portions being in the same plane. The clamped portions are moved toward each other, against opposite sides of a heated member to cause protruding edges to become plastic. Heat is then removed and plastic edges are moved into mutual abutting contact to cause the plasticized edges to contact and become fused together. Material that flows above or below upper and lower surfaces of sheet at the joint is sheared off so that joint is uniform in thickness with belt. Invented by Robert



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N. Steffens, New York, N. Y. Unassigned. Application March 26, 1942. 4 claims.

2,380,047. MEANS FOR APPLYING COATINGS such as clay bodies, lacquer, resinous coatings, various types of inks, casein solutions, various forms of glues, latex base solutions, etc., to webs or sheets of material. A coating of uniform continuity and accurately controlled weight comprised of superimposed layers of non-uniform continuity but each of controlled weight are built up on a web by passing the web over a succession of rolls and pressing it in contact with the rolls. Each of the rolls has minute intagliations arranged in a pattern of uniform distribution over its surface. Liquid coating material flows onto each intagliated roll and is transferred to web. Invented by Frank W. Hyman, New York, N. Y. Unassigned. Application October 3, 1942. 9 claims.

For Patent Research in the U. S. Patent Office, or a prompt estimate on any type of search, address INVENTION, INC., Munsey Bldg., Washington, D. C.

EXECUTIVE Qs

Maurice Tonis, a creative compositor for the past 34 years with Select Printing Co., New York, N. Y. has retired on pension. He retired on Friday, July 13. A banquet was held in his honor, at which time he was presented with a gold watch as a tribute to his long years of service. His fellow employees presented him with a War Bond. Also presented to Mr. Tonis was a tribute prepared by the staff entitled *A Tribute To A Master Craftsman*. Mr. Tonis was born in Minsk, capital of White Russia in 1881. He became a "printer's devil" at 17 in a large book and job printing house. His salary was $5 per week. After two years he graduated to a journeyman's pay of $12 per week. Compulsory military training forced him into the Russian army at the age of 20. On the termination of his service, he came to America in 1904. In 1909 he returned to Russia and in 1911 he returned to the United States. Seven years later he became a citizen and in 1920 joined Typographical Union No. 6. In the tribute paid him, it is stated: "A compositor who has worked in our shop ever since the firm was founded is a living example of good work well done, of the highest calibre of printing craftsmanship. The years have slowed him up but they have steadily increased his skill and sharpened his judgment. Once he has finished a page every rule is joined, every card is in its place, every lead is in its space, for he is incapable of poor or shoddy work." Select Printing Co. is a division of Geffen, Dunn & Co.

Wallace H. Granger has been appointed West coast manager of the Goss Printing Press Company, with offices in the Rialto Building at 116 New Montgomery Street, San Francisco. C. S. Reilly, sales manager of the Goss Company, said that by this appointment it would be possible to maintain much closer contact with the Western territory and improve Goss service there. This territory includes the States of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming, the Canadian provinces of British Columbia and Alberta, and the United States Territory of Hawaii. Mr. Granger is widely acquainted on the West coast having lived there for almost 20 years.

Wallace Granger has been appointed West coast manager for Goss Printing Press Co.

G. L. Deniston, chemical engineer, has been appointed to the staff of Battelle Institute, Columbus, Ohio, where he will be engaged in research on the development and improvement of Graphic Arts processes. Mr. Deniston. who was formerly associated with the Aero Products Division, General Motors Corporation, is a graduate of Ohio Northern University. He is a member of the American Society for Metals.

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BACK of every bar, pig and ingot of Blatchford Metal stand the extensive research laboratory facilities of National Lead Company. In these modern laboratories you will see highly specialized equipment for analyzing and testing metals and alloys. And you will also find that which you cannot really see—a restless, inquisitive spirit which never stops asking, "What can we do to improve this alloy? How can we give the buyer more for his money?"

Research that results in better alloys to insure better performance for better printing requires mind-power quite as much as machine-power. Blatchford Metal leadership that took root over 90 years ago depends today for its continuance on unlimited resources, of mind as well as of matter, for searching out new and better ways to give the printing trade a better and longer run for its type metal dollar.

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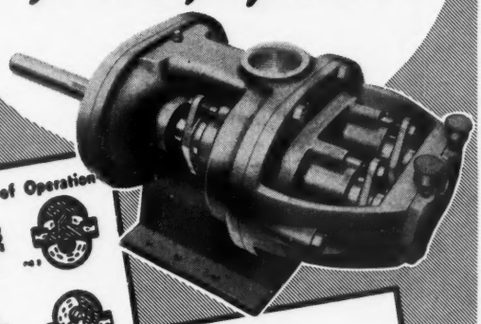

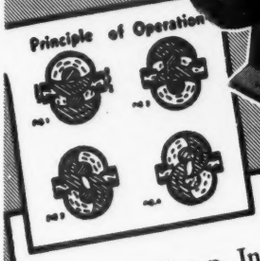

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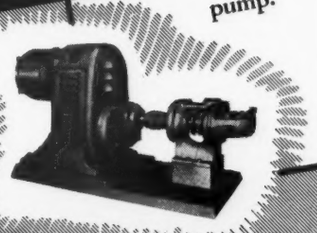

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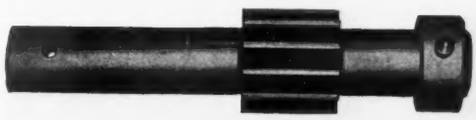

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Typical Rouse Executive Meeting—Shown here, left to right, are William J. Knoll, president; Harry W. Knoll, vice president; Walter A. Sittig, secretary and general manager, of H. B. Rouse & Co., Chicago. At these conferences new ideas and processes are discussed in preparation for postwar manufacture.

For 45 years, most of the tools used in hand-setting type have been produced under the direction or supervision of the executives pictured here. There is something made by H. B. Rouse & Company in every plant where printing is done. William Knoll, Walter A. Sittig, and H. B. Rouse incorporated this concern in 1906. Harry Knoll came with the company as sales manager about ten years ago. The original Rouse products appeared on the market in 1899.

The line was increased as time went on. Nearly 80% of the entire Rouse production is now devoted to war work. The plant is running 24 hours a day. The full Rouse organization, while devoting major efforts to war work, keeps in mind the possible application of new methods to the postwar production of time-saving equipment in the printing field.

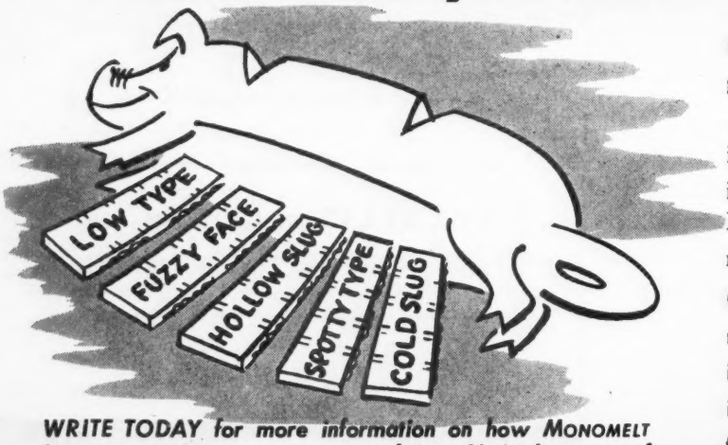
Harold A. Kernell has been appointed general manager of the Eagle Printing Ink Company, Division of General Printing Ink Corporation. He succeeds J. Howard Houston, who resigned recently. Eagle's vice president and assistant general manager, E. J. Murphy will direct Eastern sales. A. J. Try, manager of the company's Chicago office, will be in charge of sales and service for that district. Mr. Kernell will divide his time between New York and Chicago where he heads GPI's American Printing Ink Company Division.

Harold H. Shierk, of the Miehle Printing Press and Mfg. Co., recently resumed his station in the Detroit area after a residence of three years in Chicago where he was engaged in special war work in the Miehle factory. He now takes up his former duties as Miehle sales representative in Michigan and parts of Ohio and Indiana in the printing and carton industries. He can be reached at the Fort Shelby Hotel, Detroit, Mich.

R. Edgar Wallace, 52, research engineer for the Toronto (Ont.) *Star*, passed away suddenly in Toronto on June 29. He had been employed by the *Star* during the past nine years. His widow, Frances, survives. Mr. Wallace's chief invention was a paper bundling and tying machine which has a capacity of 10 bales per minute. The machine is in daily use at the *Star*. Other inventions were a carbon

CHASE THE PIGS OUT
of your composing room!

And free yourself of this litter



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dioxide fire protection system and a device for checking register on rotogravure presses. He was a Mason. Among the pallbearers was J. S. Atkinson, vice president of the *Star*.

The E. P. Lawson Company announces the appointment of Fred W. Seybold as chief designing engineer for the production of paper cutting machinery that will be offered by that company. Mr. Seybold became interested in machine design when he went to work

Fred W. Seybold has assumed new position of chief designing engineer for the E. P. Lawson Co.

in 1916 for his uncle, Charles Seybold, founder of the Seybold Machine Company. He is a graduate of Ohio State University and holds the degree of Bachelor of Mechanical Engineering, and in 1933 the professional degree of Mechanical Engineer was conferred upon him by his alma mater. In 1934, Mr. Seybold became chief engineer for American Type Founders, and until his recent resignation to join Lawson, was engaged in the design of printing machinery at Elizabeth, N. J. According to President David W. Schulkind, "the company at present is engaged in tooling-up for the production of Lawson paper cutters. The lifting of WPB's controls on basic materials will enable the Lawson company to carry out its manufacturing plans. While there will be no immediate flood of high grade steel for civilian consumption it is understood that sufficient materials, plant capacities and manpower are available to carry forward the production of Lawson paper-cutting equipment."

Major Tom E. DePoy, who joined Linotype in 1939 and served the company in Minnesota and North and South Dakota before entering the Air Corps nearly three years ago, has returned to the company as a special representative of its Executive Sales offices. Mr. DePoy is the son of E. Hod DePoy, publisher of the Van Buren (Ind.) *News-Eagle*, and learned his trade in his father's plant. Later he served as manager of the university press at Taylor University, Upland, Ind., and then as manager of the commercial printing department and as a member of the advertising staff of the Wabash (Ind.) *Plain Dealer*. For ten years he worked in composing rooms in central Indiana. He is a veteran of World War I as well as of World War II. He and Mrs. DePoy are the parents of two

Major Tom E. DePoy returns to MLCo as special representative of executive sales offices.

sons and a daughter. Tom Jr., is a private in the Air Corps, and Don is a cadet-midshipman in the Merchant Marine and now on tanker duty in the Pacific.

Film at Capacity

According to WPB, the manufacture of photographic film is proceeding at close to the capacity of the industry. Much of the film is required for military uses. Only 12 limitation orders dealing with consumers' durable goods are now in effect, contrasted with a peak total of 72 such orders, stated F. M. Mitchell, director of the Consumers Durable Goods Division of WPB.

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Here are the points about SWW Precision Paper Knives to keep before you.
1. Perfected .002" concave bevel-making for extra sharpness without weakening edge.
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3. Heat-treated by a special SWW process to combine hardness with toughness—to give maximum number of cuts between grindings.
4. Furnished as standard equipment on many of America's finest Paper Trimming Machines for more than 60 years.
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LABOR-SAVING IRON FURNITURE
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HI-SPEED QUOINS

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...Then lock-up accurately with Challenge HI-SPEED QUOINS

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● **CHALLENGE HI-SPEED QUOINS** save up to two-thirds of the lock-up time with ordinary quoins. Made of finest steel, rust-proof plated in six handy sizes—4½ to 12 inches.

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Fred L. Willis, jr., is now associated with Ipi's Atlanta office.

Fred L. Willis, jr. has joined the sales force of the Atlanta branch office of International Printing Ink Division of Interchemical Corporation. He was born and raised in Birmingham, Ala. and was a printing salesman for twelve years in various towns throughout Alabama, Georgia and Florida. Before his association with IPI he was with J. H. Schroeter & Bros., Atlanta, Ga., for nearly six years selling printing machinery and equipment throughout the Southern states.

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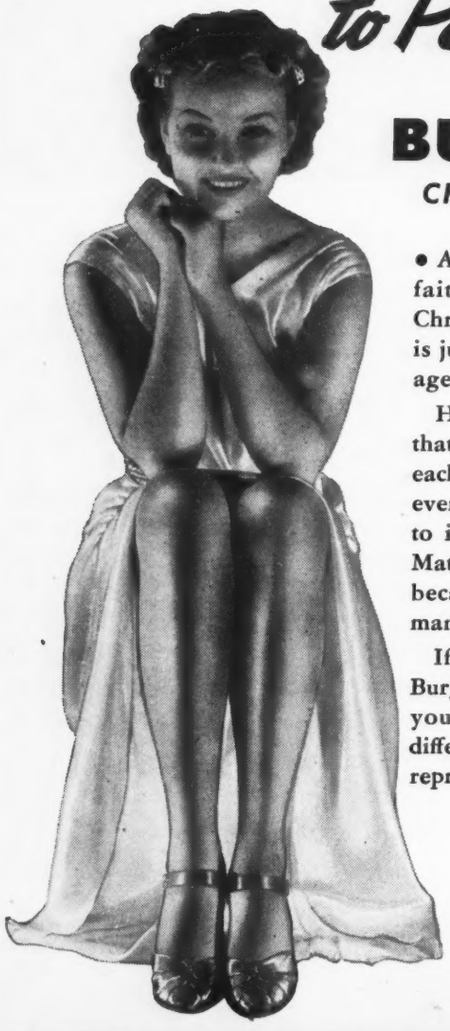
Beauty of form... molded to Perfection



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Here at last is a superior quality mat that is absolutely dependable because each mat is laboratory tested through every step of the manufacturing process to insure uniformity. Burgess Chrome Mats are a pleasure to work with too, because they're surprisingly easy to manipulate.

If, by any chance, you've missed using Burgess Chrome Mats switch today . . . you will appreciate both the quality difference and the simplification of your reproduction problem.

A Laboratory Product BURGESS Chrome MATS

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Manufacturers and Distributors of Burgess Chrome and Tone-Tex Mats

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Pacific Coast Representative

RALPH LEBER CO. 426 Polson Bldg., SEATTLE, WASH.

WPB Notes . . .

Suspension and Consent Orders Announced

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The Springfield Union Publishing Co., and the Republican Publishing Co., Springfield, Mass., were jointly charged with using 1,009.45 T. of print paper in excess of their quotas for the first, third and fourth quarters of 1943 and 1944. They were ordered to reduce their paper consumption by 100 T. per quarter under the consumption quota to which they would normally be entitled for the third and fourth quarters of 1945 and the first and second quarters of 1946.

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Tin Supply Critically Low

THE Graphic Arts Industries, so far, have gotten along very well with respect to the metals used in type and plate-making. While we don't know it to be a fact, WPB has recognized at least the semi-essential nature of the printing industry by making it possible

The New

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Sizes	Prices
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Handbook for Pressmen

BY FRED W. HOCH

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And much other valuable pressroom information. This book is bound in brown cloth, contains 236 pages, 6 in. by 9½ in., is well illustrated with line diagrams and a number of charts.

Price $3 per copy

Because of the small handling margin please enclose cash with order.

Printing Equipment *Engineer*

1276 West Third St. Cleveland 13, Ohio

NOW—for the Final Number

Dear Pop:

Well, we shoved off yesterday. No guessing about it, we all know where we're headed for; it's Hirohito Here We Come.

That 30 day furlough in Brooklyn sure put me in the pink for what's ahead. Every man-jack aboard knows we've got a tough, dirty job ahead and the sooner we finish it the sooner we'll be home for keeps. Home! Gosh, it seems so far away now. Those 30 days sure passed quick. They seem unreal now—a pleasant dream—living with the folks, visiting around, the girl friend, the shop, Ebbet's Field, etc. But I'll be back—soon as we get the Mikado off his white horse.

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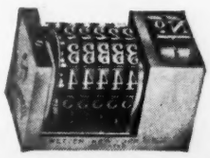
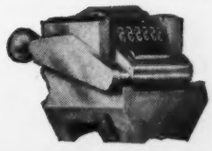
Write often and keep buying War Bonds.

The Kid



Wetter Nonpareil
One of many models



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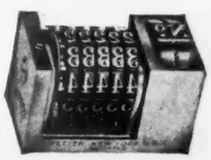

Wetter Nonpareil
One of many models

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Wetter Rotary
One of many models

WETTER NUMBERING MACHINE CO.

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Sold by all dealers and branches

AMERICAN TYPE FOUNDERS

for printers and platemakers to maintain ample metal supplies in their plants.

This will be evident when one reads the July 11 WPB announcement in which it is stated that 70 per cent drop in available supplies of pig tin since January 1, 1942, precludes the possibility of releasing any tin for current reconversion. Fortunately, reconversion wheels can keep turning, WPB said, as there are substitutes for tin for most uses.

Total pig tin available for allocation and industrial reserve stocks, after allowing for an 18,000 T. minimum industry working inventory and Navy and treasury reserve of 12,140 T., amounted to only 23,654 T. on May 1, 1945, compared with 83,076 T. on January 1, 1942.

Civilian demand, sharpened by four years of a slim tin diet, would consume this 23,654 T. in one gulp if unrestrained by Government restrictions to safeguard military uses, WPB said. The average pre-war automobile, for instance, used 8 lbs. per car. Accordingly, an ordinary 4,000,000-car year would chew up about 15,000 T. of tin, or approximately 65 percent of current available stockpile.

When bombs dropped on Pearl Harbor, availability of 90 per cent of our tin imports were immediately cut off. Domestic tin production has never exceeded 100 T. annually. The 90 per cent reduction represented our previous imports from the Malayan Peninsula and Netherland East Indies. Even our modest stockpile of pig tin on January 1, 1942 was possible only because comprehensive plans to secure the metal had been formulated and vigorously prosecuted 18 months prior to December 7, 1941, at the inception of the national defense program. Ten days after Pearl Harbor, controls were put on tin distribution and have been steadily tightened as the stockpile dwindled, through successive amendments to tin conservation order M-43. Further tightening of controls are in prospect, barring an early V-J Day.

Small Motors Delivery Permitted

THE delivery of small commercial electric motors is permitted hereafter without War Production Board authorization regardless of quantity, the WPB said on July 14. Revocation of L-341 puts the delivery of these small motors on the basis of Priority Regulation 1 rather than allocation from WPB. It will allow manufacturers to ship unrated orders whenever possible. All rated orders, however, must be shipped first.

Printing Firm Ordered to Cut Paper Quota

A WAR Production Board suspension order has been issued against the Liberty Show Printing Company, Pittsburgh, Pa., for using paper in excess of its quota, Anson M. Bartlett, regional WPB compliance chief announced on July 14.

The company was charged with processing for production of displays 50 T. of paper in excess of its quota allotment. The violation which took place during 1944 was termed by WPB officials as "gross negligence and resulted in the diversion of critical materials to uses not authorized by the WPB".

Under the terms of the suspension order the company has been ordered to reduce its use of paper for the production of displays during the third and fourth quarters of 1945 and first and second quarters of 1946. The order is effective immediately.

WPB's Motor Directory

A DIRECTORY prepared by WPB lists the various types of electric motors and generators produced by the 183 builders of this type of industrial equipment, WPB reports. Included are fractional horsepower motors and generators, aircraft type electric motors, geared and non-geared, generators (in fractional h.p. frame exclusive in automotive type), amplidyne and servo-generators, etc., dynamotors, inverters, selsyns, autosyns and synchros, d.c. motors and generators, all d.c. mill type motors, all d.c. split frame motors, induction motors, single-phase motors of all types and sizes, synchronous motors and a.c. generators and direct current and alternating current motors and generators.

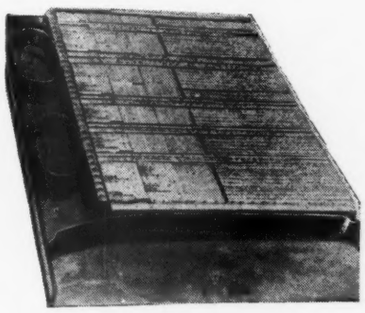
Paper Quotas For Book Publishers Increase

PUBLISHERS who issued a greater tonnage of less-than-32-page school work books, educational tests and juvenile books in the years 1941, 1943 or

Composing rooms have a way of getting "messed up". The war years have not retarded this tendency, and nearly all plants need a thorough housecleaning and rearrangement. Hamilton's solution is a helpful booklet, "CLEAN HOUSE FOR PROFITS" ... it tackles your problem and tells what you can do about it NOW. Ask your dealer for this booklet, or write us for your copy. It will help you plan for profits in post-war years.

HAMILTON MANUFACTURING COMPANY
TWO RIVERS • WISCONSIN

Untie Your Printers!



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Width of Galley	Price per Hundred	Width of Galley	Price per Hundred
3½ inch	$ 8.00	10 inch	$12.00
26½ pica	10.00	10½ inch	12.00
6¼ inch	10.00	12 inch	15.00
8½ inch	12.00	17¼ inch	23.00
8¾ inch	12.00	19½ inch	26.00

Size	GALLEY SIDE LOCK	Price per Hundred
8 inch		$8.00

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The finest **TYPE METAL** *and* **SERVICE** *that money can buy!*

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METALS REFINING CO. DIVISION • Hammond, Ind.

1944 than they did in 1942, are given increased paper quotas by amendments to the book order (L-245) and the commercial printing order (L-241) just issued, the War Production Board announced on July 18.

The additional tonnage is provided under the "Miscellaneous Publications" paragraph of Schedule II to Order L-241, and hence must be charged against the quota of the printer as well as the publisher, WPB's Printing and Publishing Division explained. The amendment does not require book publishers to recalculate their regular quotas under order L-245 but merely gives them additional rights under the "Miscellaneous Publications" provisions of order L-241, WPB pointed out.

Directed To Reduce Orders by Five Per Cent

USERS of newsprint were directed on July 30 by the War Production Board to reduce by five per cent their orders placed with mills for August delivery. This was effected by the issuance of Direction 4 to General Conservation Order M-241. The direction applies to dealers, publishers, printers or other persons, except those whose August deliveries of newsprint from mills would be reduced to less than one carload, Forest Products Bureau officials said.

WPB action was required because United States orders for August delivery of newsprint exceeded supply by 11,500 T.

Newsprint manufactured in Canada and the United States has been pooled as a single source of supply, WPB said. Any reduction in delivery acceptances, therefore, is to be applied uniformly to all United States users of newsprint whether they split orders between American and Canadian suppliers, order 100 per cent from Canada or 100 per cent from United States mills.

The Canadian agreement to increase supply to 220,000 T. of newsprint each month in the third quarter of 1945 was predicated on the WPB promise to take immediate steps to eliminate any excess orders that might occur.

If any capacity should be released in United States mills as a result of the reduction, WPB said, it will be available for orders, including U. S. Government orders, which Canada had been requested to accept.

Brightness Limitations Removed

BRIGHTNESS limitations of various grades of paper and paperboard, attained by the use of chlorine, have been removed, effective July 4, 1945, by revocation of Order L-11, which was issued April 30, 1943, the Paper Division of the War Production Board announced recently. Importations of "high-white" pulp have eliminated the need for the controls of Order L-11. The Canadian pulp and paper industry made a similar move, effective July 1, WPB said. Chlorine, used as a bleaching agent in papermaking, will continue to be allocated under Conservation Order M-19, WPB emphasized.

Violations of Orders Announced by WPB

VIOLATIONS of War Production Board limitation orders were announced by WPB on July 27.

The Charlton Publishing Corp., Derby, Conn., publishing song magazines, *Hit Parader*, *Radio Hit Songs* and *Big Song Magazine*, was charged with exceeding its paper quota for 1944 by 86 T. of print paper. Under the suspension order, the company is forbidden to use print paper in excess of 140.07 T. quarter for the last two quarters of 1945 and the first two of 1946.

Galesburg Printing and Pub. Co., Galesburg, Ill., publishing the *Daily Register Mail*, was charged with exceeding its print paper quota by 52.924 T. during the last quarter of 1943 and all of 1944 and was required to reduce its consumption of print paper, during the last half of 1945 and the first half of 1946, respectively by quarter in the following amounts, 6.334, 17.666, 12.5 and 16.424 T.

A suspension order involving violation of War Production Board limitation order was announced by WPB on July 30

The Day Publishing Co., Inc., New York, N. Y., publishing a newspaper called *The Day*, was charged with using a substantial amount of paper over its quota in the first quarter of 1943, as a result of an error in calculating its quota

During the third and fourth quarters of 1945 the company is forbidden to use more than 390 T. of paper in each quarter and cannot carry over into subsequent quarters any less-than-quota use during those quarters.

BOOKS Received

1945 Packaging Catalog

THE new *1945 Packaging Catalog* is an encyclopedia of packaging for every industry offering packaged goods for sale. The Catalog has been completely revised and reoriented to assist production and merchandising executives to rebuild competitive markets.

An imposing list of authors working under the direction of Editor-in-Chief Christopher W. Browne make this volume sparkle. Incidentally, many of the authors are well known authorities in the equipment, printing and technical fields.

For the first time since 1941, the *Packaging Catalog* contains a section on decorative packaging.

The first section of the book is completely new. Under the title *Rebuilding*, the following articles are features: Trends in package design, war lessons which will last, what's ahead in materials, the place of research, unsatisfied machinery needs, new shipping practices and conditions, back to competitive markets, rebuilding markets for packaged goods, and back to tested merchandising.

The Package Planning section is designed to help the executive plan reconverted and new containers, and contains articles as follows: Package functions, packaging department, hazards encountered by packages, testing package materials and packages, consider production when designing, selecting package colors, preparing art for reproduction, new developments in inks, methods of reproducing designs, artistic element, contract packaging service and a chart for color identity.

The sections on *Cartons and Boxes*, *Coatings*, *Adhesives* and *Plastics* have either been overhauled or are entirely new. The section on *Packaging for Shipment* includes the many advances created to carry every type of goods safely overseas.

Other important sections of the *Packaging Catalog* include *Wraps and Laminations*, *Cans and Tubes*, *Glass-Pottery-Closures*, *Machinery and Equipment and Merchandising*.

The Index Section is complete and is broken down into four parts, as follows: Products (Buyers') Directory, Trade Name Directory, Manufacturers' Directory and Advertisers' Index. These will be appreciated by the user when hunting either the source of material or the company which makes the product.

Some highlights from the new edition are: Complete revision of illustrative material, enlargements of charts and tables, including tabular matter on adhesives, coatings properties of materials, color and others.

The *1945 Packaging Catalog* contains almost 33⅓% more pages than the 1944 book. The publishers take purchasers of the new edition into their confidence by discussing the necessarily reduced quality of paper used together with war-time difficulties encountered in publishing the new edition, but assert that no effort had been spared to produce as timely and complete a book as the editorial staff could make it.

1945 Packaging Catalog—Size 8¼ in. by 11½ in., 957 pages, bound in gray cloth, stamped red and black ink on padded cover. End papers, type design and special section papers created by Peter Piening. Heavily illustrated throughout. Tab-indexed by sections. Price $4 per copy in the U. S.; $5 per copy foreign and Canadian countries. Order direct from Packaging Catalog, Chanin Bldg., 122 East 42nd St., New York 17, New York.

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Reliable Mat Molding Press, Model A

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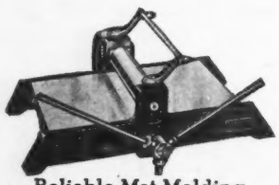


Reliable Mat Molding Press, Model B

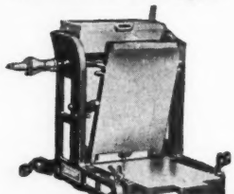
Reliable Mat Molding Press, Model D

PROMPT delivery can be made on some models of the equipment shown which are now being rushed to completion.

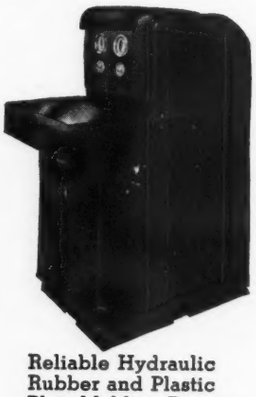
You can avoid waiting for stereotype equipment if you order at once.

Complete information will be sent upon request.

Reliable Stereotyper



Reliable Stereotyper, Bench Model



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Pioneer Builders of Modern Stereotype Equipment

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Impression Line

(Continued from Page 31)

Mat Thickness

Another cause for loose plates when bored to 0.375 in. can be traced to the thickness of the mat. Tubular stereotype equipment is machined for 0.026 in. or 0.028 in. mat thickness. This is important. If you use a thin mat, the amount of stock between the face of the plate and the casting box is less, which increases the diameter of the plate. Then if we

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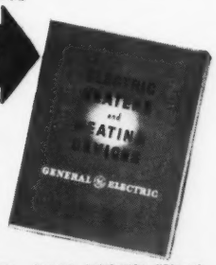

This catalog will give you the complete story on Calrod heaters and other G-E midget heaters; also information to help you select quickly the midget heater or heating device best suited to your needs.

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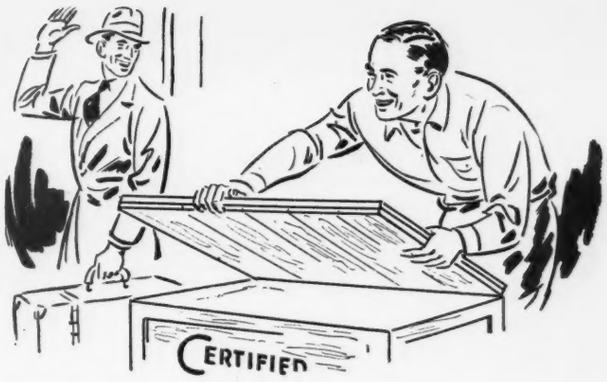

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Men, also, get sick, get drafted, covet boom wages in war plants . . . It is in times of disturbed working forces that every mechanical aid must be employed which promotes a smooth operating routine and uniformity of results . . . In the stereotyping department that includes Certified Dry Mats.

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bore the plate to 0.375 in. we find the inside diameter is more than 6.500 in. which is the diameter the plate cylinder is ground. Plates should fit cylinders tightly and be held to 0.375 in.

We are often asked how far we can go on impression before gears will bottom. That is the reason we have brought into the figures above the plate cylinder gear diameter. You will notice it is 0.050 in. less than the printing diameter of the plate on the cylinder. That would allow 0.025 in. more adjustment than the normal pitch line of gears for 7.250 in. and 14.500 in. diam. cylinders.

Packing Above Pitch Line

Much has been said about packing above the pitch line. That, of course, is necessary for the impression necessary and to compensate for the beating down of the blankets. But the more we overpack the greater will be the feed of paper and the more tension necessary to hold this paper back. Or, we are flooding after impression, making it necessary to speed up the drag rollers, nipping rolls and raising bands on folding cylinders.

In either an overpacked or an underpacked condition we are going to have from the printing standpoint about the same results. Any change of periphery speed of the printing line or face of the stereotype plate and the line of impression, be it over or under the pitch line, will cause a chafing. It will result in a slur especially noticeable in halftones where the ink from dots slurs, causing a dead or hazy appearance. We also get excessive wear of plates. The sharp lines of the type and halftone dots are quickly worn and we loose the snappy, sharp print.

We will experience a different condition in the operation of the press from overpacked and underpacked conditions. As overpacking pulls more paper and more tension is necessary to hold it back, we can expect more web breaks. Unless we have tension blocks well lubricated there will be a "jerky" motion of the web and not a smooth unwinding of the roll that we get where we can control the web with a reasonable amount of tension —not to say anything about wear of blocks and necessary extra power.

There is not so much trouble if slightly underpacked; that is, if the amount of packing we put on to start with brings us below the periphery speed of the plate at the impression line, when blankets have beaten down to the point they are about ready to be replaced.

For years, packing recommended for Duplex Presses was 0.169 in. to 0.176 in. —quite a liberal choice. But there was a reason for this. Not that there was the variation of manufacturing tolerances in the building of presses, but because of the variation of stereotype plates. Every press is manufactured to given dimensions of the blueprints, whereas stereotyping cannot be done that way. The stereotype machinery has been manufactured to close tolerances the same as the presses, but most of the stereotyping operation is not done in a machine. Some of us can look back to the old brush mat days and many to wet mats and steam tables, our own paste recipes and any number of things where the human element was the big factor.

The stereotyper worked with various materials and several operations to produce a printing plate that could not be held to the tolerance the press was manufactured under, so the variation was compensated for in blanket material and thickness.

In recommending the 0.176 in. of packing it would compensate for a very uneven plate and this packing would be soft.

Let us compare a few figures taking the extremes of packing recommended—0.169 in. and 0.176 in.:

Impression cylinders ground. .	14.175 in.
Packing 0.169 in. × 2=	
0.338 in..	0.338 in.
o.d. of impression cylinder. . .	14.513 in.

We have 0.013 in. above the diameter necessary to feed paper for 22¾ in. sheet cut or 0.0065 in. for impression where the surface speed of 7.250 in. plate and 14.500 in. impression cylinder would be the same.

Impression cylinders ground. .	14.175 in.
Packing 0.176 in. × 2=	
0.352 in..	0.352 in.
o.d. of impression cylinder. . .	14.527 in.

Here we have 0.027 in. above the 14.500 in. diam. or 0.013 in. for impression and be on the exact surface speed speed for 7.250 in. plate.

Keeping in mind that we feed paper from the O.D. of packed cylinder with 0.169 in. of packing, we start off by being only 0.013 in. above the 14.500 in.

When 0.176 in. is used we are 0.027 in. above the desired diameter. With each revolution of the impression cylinder you would be feeding approximately 3/32 in. more paper or 3/4 in. more per page than the 22 3/4 in. sheet cut. When feeding paper this fast you get a flooding after impression which you try and control by tension, with the result when plates come to the opening on the impression cylinder, the web skids or slides on cylinders because of tight tension. This happens after first impression is printed, causing some of the offset and slur on first impression.

The amount and density of packing to use, and amount of impression to carry can best be controlled in your own press and stereotype departments. Best results will be obtained if we do not pack to the extreme height. We should put forth every effort for a uniform plate, and then pack so we hold about the same amount over the surface speed of plate and impression line with new blankets as we will be under when the blankets are beaten down. In this way we are holding closer to the 14.500 in. diam. for the life of the blanket. The gears will not bottom when we go below the normal pitch line of a 7.250 in. and 14.500 in. cylinder diam.

Fluorescent Lamp Installations Bring Altered Maintenance Requirements

DURING the past several years, many printing plants have been outfitted with fluorescent lighting installations. In a manner similar to the old style mazda type of lamp, these lamps require routine maintenance care if maximum lighting benefits are to be obtained. But the maintenance routine, naturally, is somewhat different than that required for mazda lamp maintenance care.

Printing's mechanical and production executives, while they may have formulated their own ideas in this respect, will be interested in an adaptation of the Sylvania Electric Products' Fluorescent Maintenance Plan as announced in a recent company bulletin which is now at work in New England territory. "The plan", states Sylvania, "is particularly effective in maintaining fixtures in smaller installations."

Under this plan fluorescent fixtures are contracted to be cleaned four times a year at a charge of 20c a lamp per cleaning. At the same time, burned out or badly blackened lamps are replaced so that fixtures have at all times a fresh and attractive appearance.

A very small investment in equipment is required to start the plan. Wiping cloths, a supply of cleaning solution, and a pair of strong arms is all that is needed.

Two 2-pint bottles of the cleaning solution are furnished to the cleaning man. When he starts to work, he removes the stopper from one of the bottles, replaces it with a sprinkler, and shakes a small quantity on one of the cleaning cloths. He cleans the fixture with the dampened cloth, then dries it with a dry cloth. The lamps are cleaned the same way. If fixtures are glass-shielded, glass is removed and cleaned on the floor for safety.

Ladders of proper type and height are usually available, thus eliminating the necessity of carrying ladder equipment.

The cleaning man is furnished with a canvas, or summer-type, golf bag to which is stapled a hook. This is hung from the top of the ladder and as the lamps are removed from the fixture, they are placed in this bag. After cleaning the fixture, the lamps are cleaned and replaced in the fixture.

Electrical repairs or replacements required are reported by the maintenance cleaner and are handled on a regular time-and-material basis by a licensed electrician.

Experience shows that the cleaner can handle at least from 80 to 100 lamps a day—including setting up and traveling time.

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Offset's Place as a Printing Process

Partial summary of address delivered by press manufacturer's executive, May, 1945

IN THE course of an address before the Cleveland Craftsmen's Club in May 1945, R. V. Mitchell, (in order to show the growth of two printing processes), remarked that in 1939 letterpress commercial printing amounted to $515 million, and offset-lith reached a volume of $154 million. Mr. Mitchell is chairman of the Beard, Harris-Seybold-Potter Co., Cleveland. He stated that as close as can be estimated at the present time, offset is somewhere between $250 million and $300 million. He asserted that best lithographers say they believe the postwar period will see lithography a $500 million business.

He then discussed the prognostications contained in a chart for the postwar Graphic Arts industries based on anticipated national income. According to these prognostications, general commercial job shop printing is expected to increase 94% over 1939 volume; offset 88% over 1939 volume; photo-engraving 109% over 1939, and electrotyping and stereotyping 90% over 1939 volume.

Mr. Mitchell stated these figures give plenty of reason to believe there is not the slightest cause for anyone to have the jitters because of the condition of any particular phase of the Graphic Arts industries. There is no necessity for anyone to become depressed.

The speaker stated we read a great deal in the public prints that we should rush to offset-lithography. He said he didn't think there is any occasion to become excited. He believes, however, there is sufficient evidence of definite progress of possibilities within the particular processes which are so outstanding that anyone in the Graphic Arts industries certainly is put upon notice of the necessity for investigation and some carefully considered planning.

One of the greatest factors in all business is the hesitancy with which an investment is scrapped. He thinks this is particularly true of the printing industry as a business. "Printers," he said, "are inclined to stick out their chests over the balance sheets, proud of what they have and what they have acquired, but don't pay enough attention to the operating statement. It does not make any difference how much one has in asset value in the balance sheet if his work avails him nothing. So, let's keep our eye on the profit objective."

"Should the Printer Adopt Offset?"

Mr. Mitchell discussed the question: "Should the printer adopt offset?" He said this was a question every printer would have to decide for himself. He cautioned printers, however, about several elements which would have to be considered. Said he: "You must remember that offset-lithography is a different business than letterpress printing. You cannot take a letterpress crew and make a lithographic crew out of it in six weeks. You must start with competent men, particularly in the supervisory capacities. You must have men who know thoroughly the lithographic business. If you don't have them, you are going to have substantial red figures.

Possibilities in Other Two Processes

The speaker stated he believes there are possibilities in letterpress and in gravure printing with respect to technical improvements. If real effort is made to develop them, and some scientific work is done both from the mechanical and the chemical standpoints, a great deal can be done to improve them and make them more economical. He paid his respects to L. W. Claybourn by saying: "I believe Lex Claybourn has done more for letterpress printing than any one single person. Unfortunately, I think letterpress printers have not listened to him sufficiently. If they had, the letterpress printer would have made some of

the improvements that are possible. I am sure it will yet be done."

Versatility of Offset

The speaker stated that one of the outstanding things about offset-lithography is the facility with which a facsimile reproduction can be made. Another is the economy (not the cheapness) with which it can be made, because of the versatility of the process.

He enumerated some of these by mentioning house organs, price lists, salesmen's letters, economical editions of illustrations that otherwise would not be printed; blowups, enlargements, broadsides, mailing pieces made into broadsides, and broadsides brought down into mailing pieces—all providing new jobs for the Graphic Arts—which if it wasn't for the versatility with which it can be produced, would not be produced at all in the great majority of cases.

In discussing offset's versatility, he said that the letterpress edition of *Time* magazine is broken up to reproduce by offset those pages which are of interest to the fighting forces. *Time* does the same thing with its Pan-American edition, by photographically reproducing made-up pages without the advertising for South American consumption. The plates are made in the United States, flown to South America, and printed there. The London *Daily News* is being flown to America on microfilm. Blownup offset-lith plates are made from the microfilm, which are printed from in this country. The Pacific coast edition of *Time* is handled as follows: Letterpress plates are made up in Chicago and cellophane films of the pages are flown to Los Angeles. Lithographic plates are made there from which the edition is printed. The same thing is done with the Honolulu edition. After instituting the Honolulu edition, subscriptions went up from 15,000 to 45,000 almost immediately.

Short Makeready Period

Mr. Mitchell mentioned that one of the advantages of offset is in the press itself because of the short makeready period. All preparatory work in offset is done away from the press. On a big four-color press, the press can be made ready in 3½ hr.

The speaker mentioned a photo-typesetting machine as being a desirable acquisition to the offset shop. He said: "Now, of course, as to whether you should go into offset or not will be governed somewhat by whether some day we will get a successful photo-typesetting machine. The pressure with reference to its necessity might increase if we had successful photo-typesetting machines."

Future Prosperity

In closing, Mr. Mitchell stated that the question of whether we will have good business or not is going to depend in large part upon the business men of this country. He continued: "We have had leadership over a great many years. The question is whether or not business is going to keep this franchise of leadership. If we are to preserve the free enterprise system we will have to be guilty of something that is akin to industrial statesmanship. Industrial leadership is not going to be enough any more. We have got to be willing to risk our capital to save the country.

"The general public has always felt that business cycles were absolutely necessary. I'm not sure we can overcome them completely, but I think we have to admit we have never tried very hard. It seems that the shutting down of automotive factories while new jigs or fixtures are being made can be eliminated. In seasonal businesses shutdowns can be eliminated to a certain extent by planning, a willingness to risk capital, and make the employment of working men more stable and more reliable. We should be not only willing to risk our capital for profit, but we should also be willing to risk it to save the country."

An Invitation

Mechanical and production executives are invited by the editor of *Printing Equipment Engineer* to submit descriptions of things innovated in their plants. These may consist of mechanical or electrical improvements or improved production procedures.

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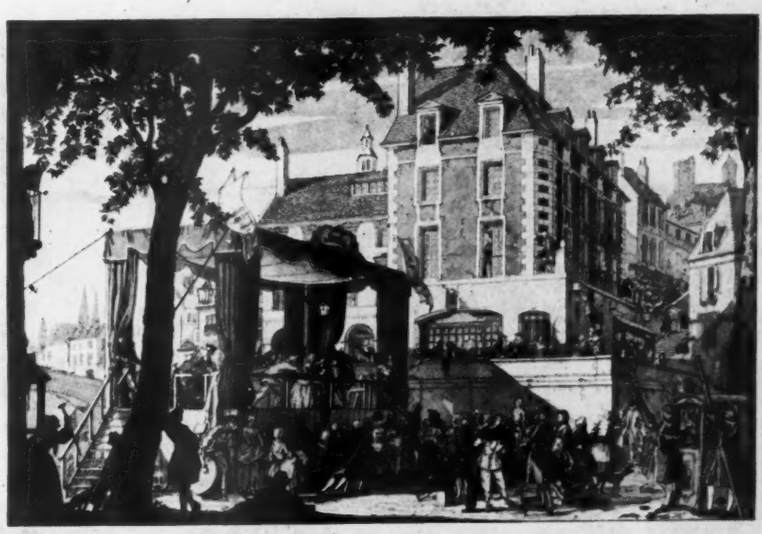
Catalog Published by Battelle

A 72-page catalogue of the publications and patents which have resulted from fifteen years of fundamental and applied Battelle research has just been published by Battelle Memorial Institute, Columbus, Ohio.

Founded to advance education, science, and industry through research and through the dissemination of technological information, Battelle has published widely in the nation's technical and scientific journals. The new catalogue lists more than 800 such journal contributions, books, and patents between the years 1929-1944, inclusive.

The catalogue includes subjects in the fields of organic chemistry, electrochemistry, chemical engineering, Graphic Arts, welding technology, applied mechanics, mineral dressing, industrial physics, ceramics, fuels, and metallurgy.

Copies of the catalogue are available on written request on university or company letterhead.



1945 1946

HARRIS-SEYBOLD-POTTER COMPANY

Shown here in miniature is the calendar recently published by Harris-Seybold-Potter Co. The original water color painting by T. M. Cleland, from which the illustration was reproduced by offset-lith, represents an imaginary street scene in an 18th century French town. The traveling street theatre has been set up for entertainment of the public. A limited supply of the illustration has been set aside for those desiring a copy for framing.

Sixty-five Magazine Publishers File

Sixty-five magazine publishers have filed with the War Production Board statements of their intentions to use paper under provisions of magazine limitation Order L-244. This order now permits new publishers to use up to 5 T. of paper per quarter. These certifications, states WPB, were received during the period July 3 to July 31.

Temp. and R. H. in the Pressroom

(Continued from Page 28)

ink must dry largely by oxidation or polymerization.

Drying Methods

If inks mixed to dry largely by absorption are applied to a sheet of paper which already contains an excessive amount of moisture, it is obvious that paper cannot absorb or set the ink as quickly or as readily as it should. Such conditions will tend to increase offset and smudging.

In order to properly appreciate the effect of temperature and humidity on the drying of ink, we must first refer to the various methods used to get an ink to set and dry. Every printing ink known today dries by one of four previously mentioned processes and a great many inks utilize a combination of two methods. These are absorption, such as found in news inks and in combination with oxidation in quite a wide range of inks. Secondly, evaporation, such as rotogravure and aniline ink. Third, polymerization, which may be described as a hardening process but is demonstrated separately in such inks as wax-set, used in the bottle-cap and wax paper divisions. Lastly, is oxidation, common in letterpress and lithographic ink.

Ink Penetration

Newspaper ink dries almost exclusively by penetration. It is really astounding when one thinks that an ink will stay wet on the press almost indefinitely and yet can be prepared with such an affinity for paper that even at press speeds of 45,000 per hour, the ink is virtually set as the papers are delivered from the press. Most ink gets thinner as they get warmer. As a rule, the thinner an ink the faster the penetration, although there is a difference as well in different oils.

In book inks that dry by a combination of absorption and oxidation the speed of setting is considerably helped by running the sheet over a heater attached to the press. For one thing, the heat thins the ink sufficiently to help penetration to a considerable extent. The effect of atmospheric humidity on inks that dry by absorption will be given more consideration later.

Rotogravure and aniline inks which contain a large percentage of volatile content, dry by evaporation. The speed of drying is almost in direct proportion to the amount of heat applied plus a current of unsaturated air. An atmosphere heavy with humidity has not the space to absorb the volatile content as rapidly as one low in relative humidity.

During the past few years, inkmakers have been giving a great deal of attention to what are known as heat-setting inks, which employ the principle of evaporation for the larger part of their drying action. These inks have reached such a stage at the present time that it is safe to

Like Automobiles, Printing Presses Need Periodic Attention Keep Them Running Smoothly

VIBRATION will cause screws, bolts and nuts to loosen and possibly interfere with the operation of moving parts or cause abnormal wear. Loosened parts may drop out of place and result in serious damage, or register may be affected, "slurs" may appear, or the form may begin to show wear. Keep presses *tight!* — From Miehle *Wartime Care for Printing Presses.*

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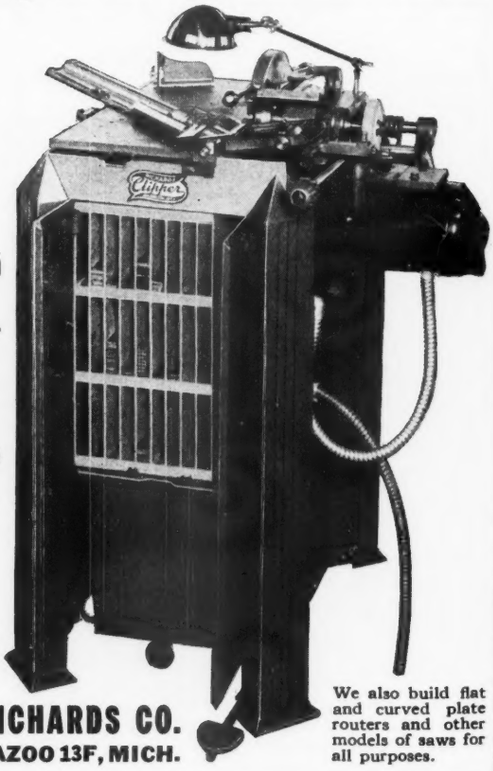

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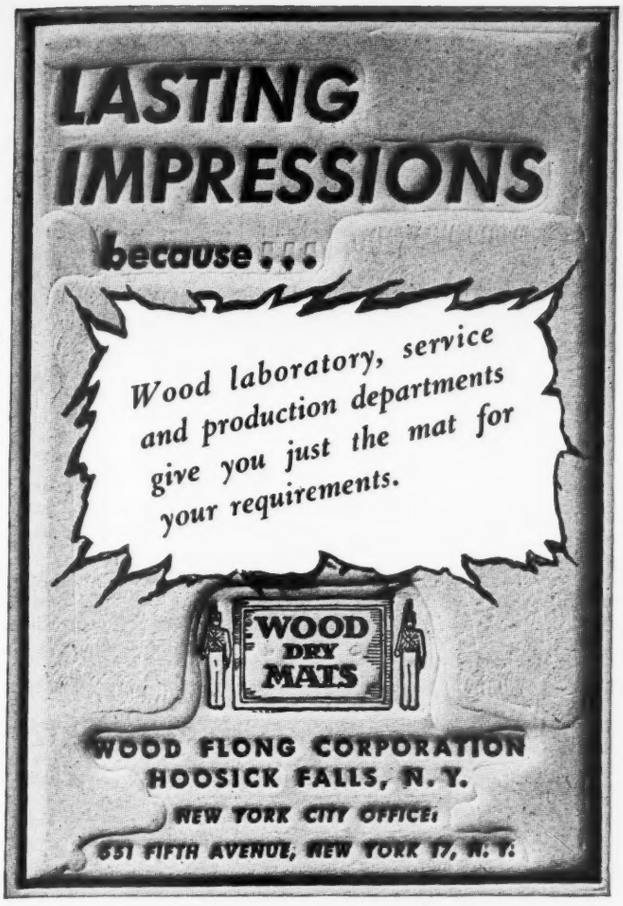
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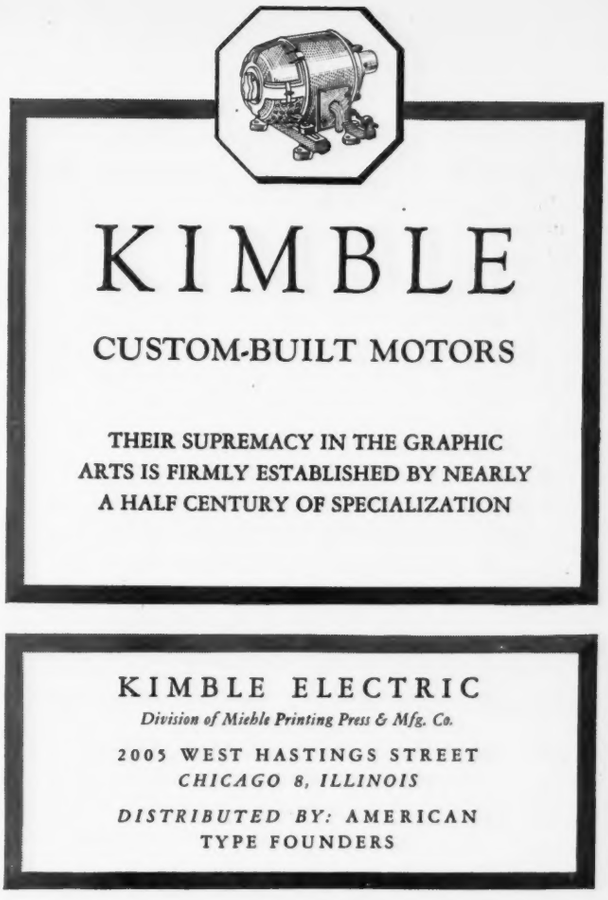
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say that they will become a factor in the ink industry. The problem has been to find materials that will be stable under ordinary pressroom temperatures but will volatilize rapidly when heat is applied.

Polymerization

This is simply a hardening or stiffening process that changes the ink from a fluid to a solid body. It is really a process that takes place in the drying of any ink as the fluids or vehicle leave the ink film whether by assimilation with the paper or evaporation leaving the solid body of color bound to the paper. There is a relatively new type of ink which perhaps comes under this head known as wax-set inks. These inks polymerize instantly as hot wax comes into contact with them. Their use at the present time is restricted but inkmakers are studying the principle involved and it may be that their field can be considerably extended. They do not dry on the press nor depend on penetration for any of their action. They thin out considerably under the application of heat but so far as known atmospheric humidity is not a factor.

Oxidation

The most common type of drying is oxidation—the method employed in the inks which most of us use everyday. By means of dryers added to the ink the rate of drying can be greatly accelerated. These dryers are largely produced from metallic salts; usually lead, manganese or cobalt. Cobalt is known as a surface dryer while both lead and manganese tend to dry the ink uniformly throughout the film. Paste dryers are usually supplied to the trade containing a combination of lead and manganese while cobalt is generally sold as a separate unit.

Factors in Drying

There are several theories as to what actually takes place in an ink when a dryer is added, the most generally credited holding that the dryer assists the oils in taking oxygen from the air. If this theory were correct, one would expect to find that humidity makes no difference for there is probably as much oxygen in moist air as in dry air. There is more oxygen in water than in air. The answer probably is that the presence of moisture during the period of high relative humidity acts as an insulating agent between the ink film and the accessible oxygen in the air.

Positive and scientific information on the effect of both temperature and humidity on the drying action of inks is not available, due to the difficulty of making accurate tests. To get this information it would be necessary to conduct a series of tests by using the same ink with exactly the same thickness of film on identical paper under identical conditions. To test the effect of temperature alone it would be necessary to measure the speed of drying at say 50, 60, 70, 80 and 90 deg. F. under the same percentage of relative humidity. To test the effect of humidity alone it would be necessary to make tests say from 10 per cent to 80 per cent degrees of relative humidity under the same temperature. It would also be necessary to set up a definite standard to know at what point the ink is dry. In making this test, too, it would be necessary to eliminate other factors in the drying of an ink, such as penetration and evaporation before accurate results could be obtained.

The speed of drying is dependent upon the amount of dryer, to certain limitations, added and the percentage of metallic content in the dryer subject, of course, to the vagaries of temperatures and humidity.

Since little accurate and scientific information is available we must depend upon the rule of experience. We know that temperature and humidity, while separate factors, are both at work at the same time. In preparing this paper we have asked a number of printing inkmakers for their experience. They were almost unanimous in the view that a rising temperature speeds up drying and that an increase in humidity tends to slow down the drying. Some hold the view that a change of 20 deg. F. in temperature will make a change of 100 per cent in drying time. Others claim that even 10 deg. in temperature will make 100 per cent difference in drying time. This means that an ink that will dry in six hours at 60 deg. F. will dry in three hours at 70 deg. F., will dry in an hour and a half at 80 deg. F., and in three-quarters of an hour at 90 deg. F.

Here's where the rub comes. If temperature alone were the factor things would be easy. It seems to be the con-

sensus that inks will set more quickly at a given temperature as the humidity rises to around 45 per cent or 50 per cent and that beyond this point the humidity retards drying in increasing rapidity as it goes up so that at 75 per cent or 80 per cent relative humidity most inks will dry very slowly. This effect, however, is produced in as large a measure by the effect of humidity on the paper as on the dryer. Where there is little or no humidity paper fibres get very hard and brittle and it is difficult for the ink to penetrate but as the humidity increases the paper fibres will expand and permit penetration up to the point where they have sufficient humidity to more or less repel the ink.

One other factor—air is necessary to drying. It is not uncommon to find that ink will set around the outside of a sheet in a pile while the center of the sheet is still wet, because the air cannot get to it. Covering a pile of paper, however, is usually done to avoid paper stretch and shrinkage due to changing humidity conditions.

The making of printing ink is not an exact science. It is a credit to the combined skill of the inkmaker and the pressman in charge of the job that there is not a much larger percentage of loss than actually occurs in the average pressroom where no attempt is made to govern temperature and humidity conditions.

Considerable trouble is experienced by pressmen when either a high or low relative humidity reading is shown on the hygrometer or psychrometer. It is practically impossible to turn out a one hundred per cent perfect job in color for the customer when these conditions exist in the pressroom.

Humidity and Register

It is only in recent years that specialized and authentic information has been obtained about the adverse effects of humidity in the pressroom and its influences on color printing. Prnters, through lack of information, were not inclined to place the blame for poor register on humidity changes. Poor register was usually blamed on presses, pressmen, engravers, compositors or the paper —everything but humidity. Until recent years some printers have doubted very much whether the condition of the atmosphere has any noticeable effect on paper.

Change in Sheet size

For the purpose of ascertaining authentic information a large paper manufacturer made tests which show up the changes in sizes of sheets in an impressive way. The stock was 28 x 32—96. They called the sheet size zero when the case was opened. The top sheet stretched 1/32 in. during the first eight minutes, 1/32 in. during the next three minutes, 1/32 in. during the next eight minutes, or a total of 3/32 in. in the first 19 minutes. The humidity of the room was 72 per cent. A similar condition was experienced in shrinkage of the sheet when the relative humidity fell below 10% in the winter when artificial heat was being used, although the shrinkage was relatively less by comparison. Prevailing atmospheric conditions at the time paper is run through the press governs size changes and register difficulties no matter how long the pile was exposed to surrounding conditions previously.

Say for example, if a pile of stock *cured* all winter with artificial heat and was run on a damp day in April, the center of the pile would be bone-dry, while the edges were taking on moisture. This condition is a contributing factor resulting in *paper* wrinkles, curly edges and excessive static in the spring.

Conditions Just Right

Paper containing 5 per cent moisture printed in a room at 78 deg. F., with relative humidity at 40 per cent will be in equilibrium with the air and will register, without static, whether the paper be hot or cold. The humidity must be kept constant, however, during both the first and subsequent printings. This statement may seem exaggerated and inadequate to some. However, no proof to the contrary has come to our attention.

Protecting Piles

Paper manufacturers have offered the following suggestions in the care of paper: (1) Keep air in constant circulation. (2) Protect paper from exposure. (3) Do not remove ream wrappings or open cases until ready to put on press. (4) Keep piles covered with some moisture-resisting covering. (5) Keep piles as well as each sheet in numerical order for subsequent colors.

Many register problems could be avoided by using paper with a long grain to prevent the fibers, to a great extent, from changing the size of the sheet as much the long way. Paper fibers are hygroscopic and shrink or expand in diameter and very little in length. When a sheet 25 x 38 long grain is used, the per cent of shrinkage or expansion is less by the difference between 25 and 38 inches, or about one third.

There are dozens of improvised methods for controlling relative humidity in the printing plant. However, printers would do well to safeguard themselves when purchasing either humidifying or de-humidifying equipment by making exhaustive tests, using psychrometer readings both before and after the equipment starts operating.

In the near future, perhaps, we will think of 100% air-conditioning in the printing plant as a pre-requisite conducive to quality printing.

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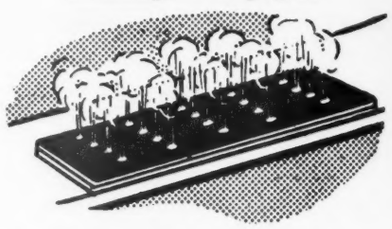

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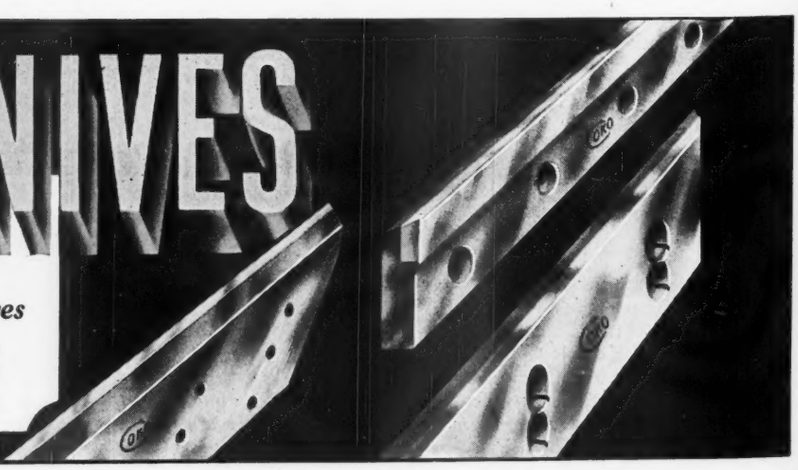

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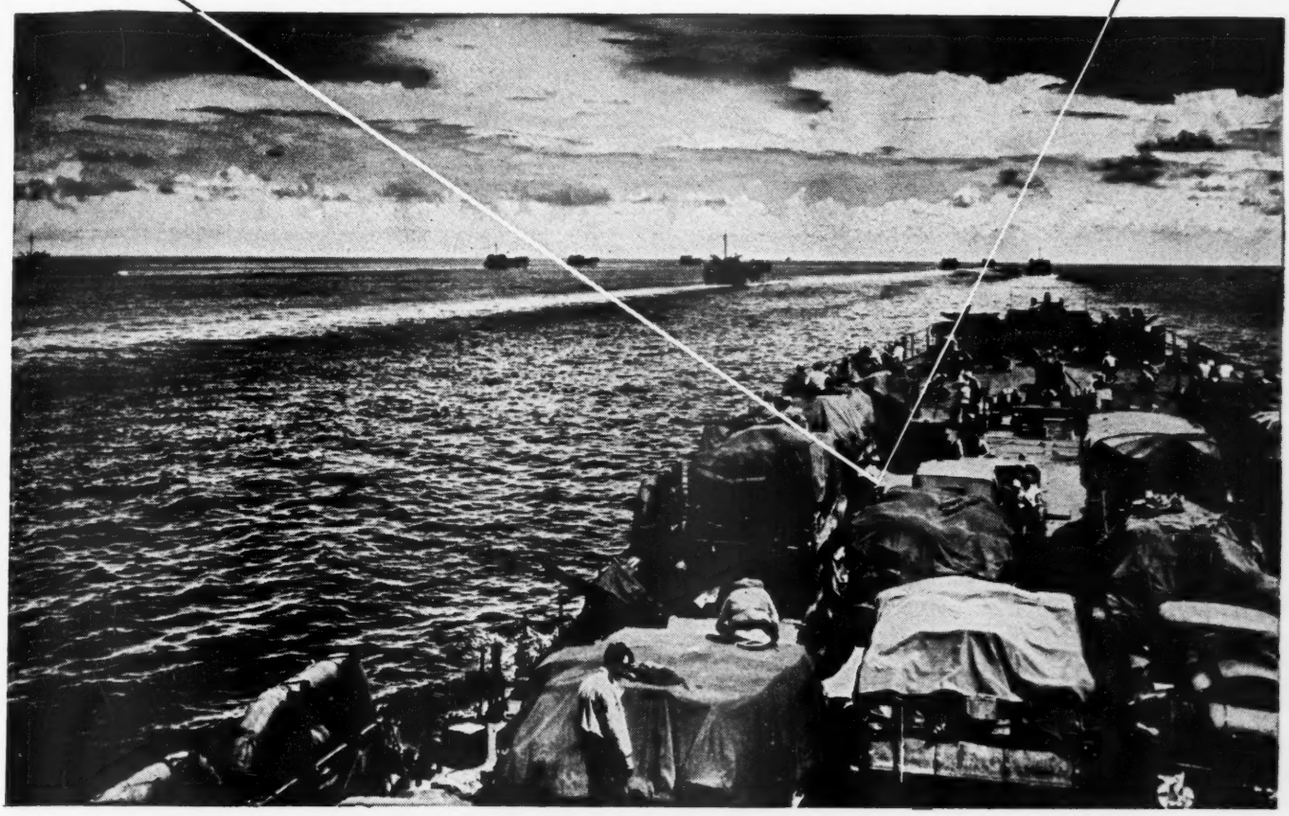

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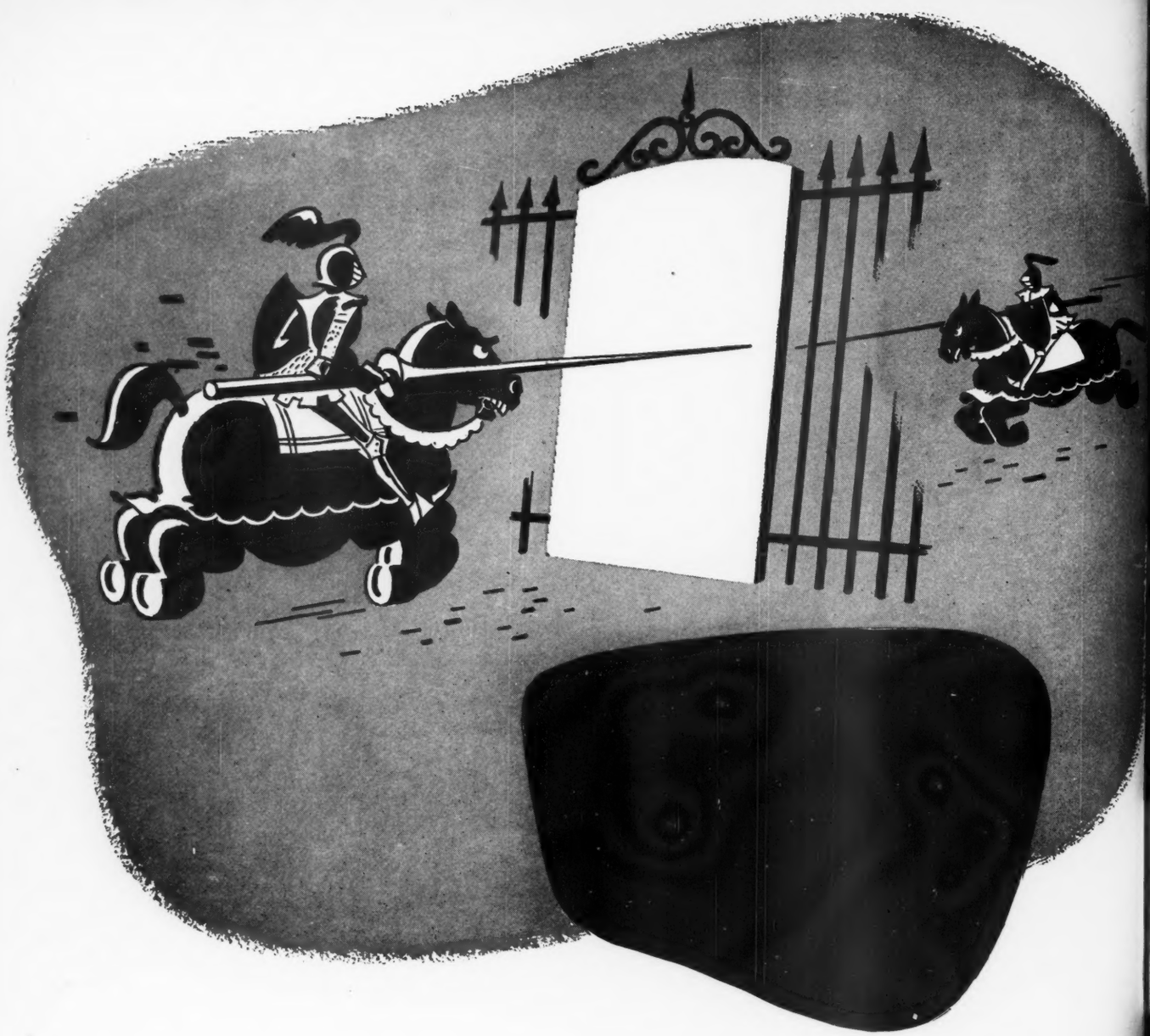

SEEMS these two knights met at a gate in the road.

"Prettiest white gate I ever saw," remarks Sir John.

"White? It's black!" exclaims Sir James.

"WHITE!" shouts Sir John.

Well, in practically no time they're charging each other full tilt. Next moment, they're both flat on their backs in the road, mortally wounded. And, each having gone through the gate when they charged, each sees as he draws his dying breath that the gate is actually white on one side, black on the other.

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